2305A & 2306A

TRIANCO

EuroStar Combi Eco.

209874

209924 SUMMER WINTER SWITCH

207296 INFILL

9/123 SCREW

9/266 CABLE CLIPS



USER, INSTALLATION COMMISSIONING & SERVICING INSTRUCTIONS

CE BED 92/42 EEC
EMC 89/336 EEC

To be retained by householder

HEALTH AND SAFETY

INFORMATION FOR THE INSTALLER AND SERVICE ENGINEERS

Under the Consumer Protection Act 1987 and the Health and Safety at Work Act 1974, it is a requirement to provide information on substances hazardous to health (COSSH Regulations 1988).

The Company takes every reasonable care to ensure that these products are designed and constructed to meet these general safety requirements, when properly used and installed.

To fulfil this requirement products are comprehensively tested and examined before despatch.

This appliance may contain some of the items below.

When working on the appliance it is the Users/Engineers responsibility to ensure that any necessary personal protective clothing or equipment is worn appropriate to parts that could be considered as being hazardous to health and safety.

INSULATION AND SEALS

Glass Rope, Mineral Wood, Insulation Pads, Ceramic Fibre, Glass Insulation.

May be harmful if inhaled. May be irritating to the skin, eyes, nose or throat. When handling avoid inhalation and contact with eyes. Use (disposable) gloves, face masks and eye protection.

After handling wash hands and other exposed parts. When disposing, reduce dust with water spray, ensure parts are securely wrapped.

GLUES, SEALANTS & PAINT

Glues, Sealants and Paints are used in the product and present no known hazards when used in the manner for which they are intended.

KEROSENE & GAS OIL FUELS (MINERAL OILS)

1. The effect of mineral oils on the skin vary according to the duration of exposure.

2. The lighter fractions also remove the protective grease normally present on the surface of the skin rendering the skin dry, liable to crack and more prone to damage caused by cuts and abrasions.

3. Skin rashes (oil acne). Seek immediate medical attention for any rash, wart or sore developing on any part of the body, particularly the scrotum.

4. Avoid as far as possible any skin contact with mineral oil or with clothing contaminated with mineral oil.

5. Never breathe any mineral oil vapours. Do not fire the Burner in the open i.e. out of the Boiler as a misfire will cause unburnt oil vapours.

6. Barrier cream containing lanolin such as Rosalex Antisolv, is highly recommended together with a strict routine of personal cleaning.

7. Under no circumstances should mineral oils be taken internally.

CONTENTS

	PAGE
PROGRAMMER SETUP	1/2/3
1. USER INSTRUCTIONS	4/5
After sales service information	6
2. INTRODUCTION	7
3. TECHNICAL INFORMATION	7
Technical Data	8
Outline Dimensions	9
Pump Curves	10
D.H.W. flow	10
Wiring Diagram	11
4. INSTALLATION	12
Regulations	12
Health and Safety	12
Siting the Boiler	12
Water Systems	12
Water Systems Connection	13
Functions of water circulation pump	14
Combustion air conventional flue	16
Ventilation (conventional flue boiler)	16
Extraction fan	16
Electrical Supply	17
5. OIL STORAGE TANK	18
Oil supply line	18
Single pipe oil supply	18
Two pipe oil supply	18
Oil De-aerator - Single pipe supply	18
6. FLUE SYSTEM	22
Conventional chimney	22
2270 & 2271 Horizontal telescopic BF kit	25
assembly notes	26
2272 High level adaptor kit	27
Assembly method	28
2273 Vertical BF kit	29
Assembly Method	30
7. COMMISSIONING	31
Procedure	31
Handing over	31
8. SERVICING	32
Oil Tanks	32
Line Filters	32
Boiler	32
9. FAULT FINDING	33
10. SPARES	
Casing Assembly	37
Control Box Assembly	38
Boiler	39
Pipework	40

PROGRAMMER SET UP

INTRODUCTION

The programmer is an electronic 7 day, central heating and hot water control. It is extremely reliable, easy to operate and, properly programmed, will help reduce boiler running costs whilst creating a comfortable environment in your home.

The programmer has the following features:

3 ON and 3 OFF periods every 24 hours with a choice of different programmes for each day of the week.

Programme options:

AUTO - Full programme of switching times
ALL DAY - On all day.
24 HOURS - Continuous operation
OFF - No programme switching

Choice of HOT WATER ONLY or CENTRAL HEATING and HOT WATER.

Central heating ADVANCE button allowing instant switching to next ON or OFF

TIME. BOOST facility allowing an extra hour of hot water when required.

Time and Day display - 12 hours AM-PM clock with day of week indication.

Battery reserve - retains programmed settings in event of power failure.

SWITCH SETTING

Programmer is dispatched with switch set to 'G'.

BUTTONS, INDICATORS & SYMBOLS

Most of the control BUTTONS have a dual purpose function. They are used as SET buttons for the time of day and ON-OFF times etc, or as SELECT buttons for ADVANCE and BOOST facilities and choosing override programme options.

Fig. 1 identifies the SET buttons. indicators and symbols referred to in SETTING THE DAY AND TIMES OF DAY and SETTING THE 'ON' AND 'OFF' TIMES sections of these instructions.

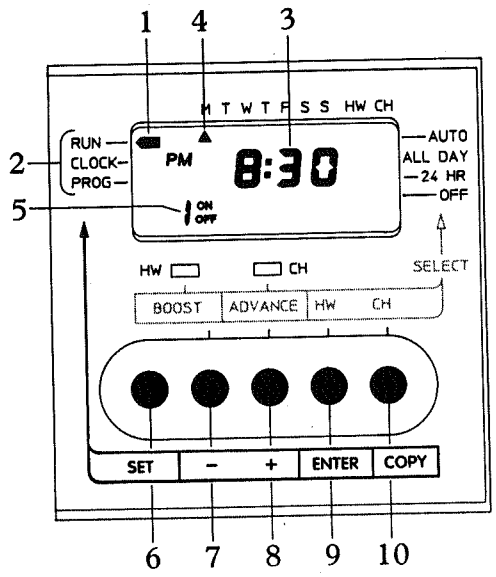


Fig. 1

1 Set indicator
2 Set positions
3 Time of day
4 Day of week indicator
5 ON/OFF switch period symbol
6 Set button
7 Minus (-) adjust button
8 Plus (+) adjust button
9 ENTER button
10 COPY button

SETTING THE DAY AND TIME OF DAY

(a) Press the SET button so that the INDICATOR points to the CLOCK position. The DAY INDICATOR will now flash (Fig. 2).

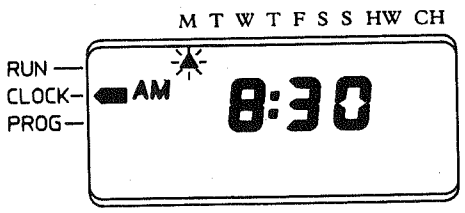


Fig. 2

Using the day PLUS (+) or MINUS (-) buttons, move the day INDICATOR to the current day of the week. Letters indicting the days are shown along the top of the display, i.e. M = Monday, T = Tuesday and so on.

(b) Press the ENTER button and the TIME OF DAY will now flash (Fig. 3)

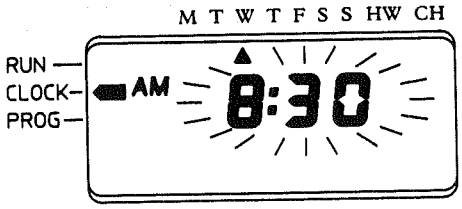


Fig. 3

Using (+) and (-) BUTTONS, alter the display to the correct time, making sure the AM/PM SYMBOL is also correct. (Fig. 4)

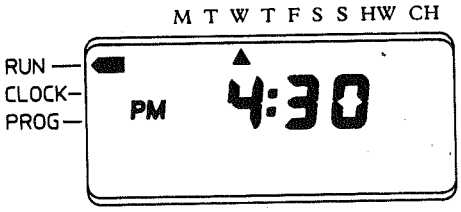


Fig. 4

Press the ENTER button and then use the SET button to return the INDICATOR to the RUN position.

NOTE: The (+) and (-) buttons advance or retard the time in 1 minute steps. If the button is kept depressed, the display will fast cycle and the time can be changed rapidly.

SETTING THE 'ON' AND 'OFF' TIMES

The programmer is already factory pre-set with a programme of ON-OFF times in its memory. These are based on the most commonly used settings and re as follows:

Monday to Friday	
1st ON - 7.00am	1st OFF - 10.00am
2nd ON - 12.00pm	2nd OFF - 12.00pm
3rd ON - 5.00pm	3rd OFF - 11.00pm

Saturday and Sunday	
1st ON - 7.30am	1st OFF - 11.30am
2nd ON - 12.00pm	2nd OFF - 12.00pm
3rd ON - 12.00pm 3rd	OFF - 11.00pm

If these settings do not meet with your own requirements, they can be easily changed as follows:

(a) Press SET button so that the SET INDICATOR is in the PROG position. The display will indicate 'day' and the DAY OF THE WEEK INDICATOR will now flash. (Fig. 5)

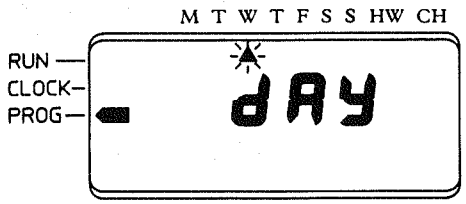


Fig. 5

Use the (+) and (-) to move the indicator to the day of the week you wish to change the times for, then press ENTER.

(b) The display will now show '1 ON' and the first ON time for that day will flash (Fig. 6).

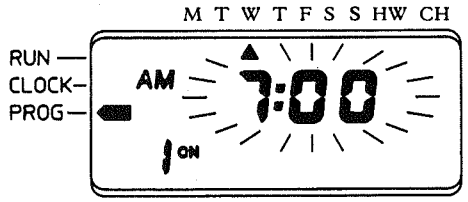


Fig. 6

Alter the time to that required by using the (+) and (-) buttons then press ENTER

(c) The display will now show '1 OFF' and the first programmed OFF time for that day will flash (Fig. 7)

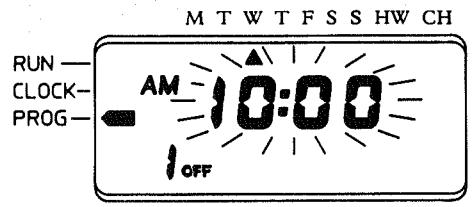


Fig. 7

This can now be changed in the same way.

(d) Follow the same procedure for the 2nd and 3rd ON-OFF times and remember to press the ENTER after each change.

If you do not wish to change a particular time, then simply press ENTER and the display will move on to the next ON-OFF time, leaving the previous one unchanged.

(e) When the 3rd OFF time has been entered, the Programmer will display the word COPY and the DAY OF THE WEEK INDICATOR will flash (Fig. 8)

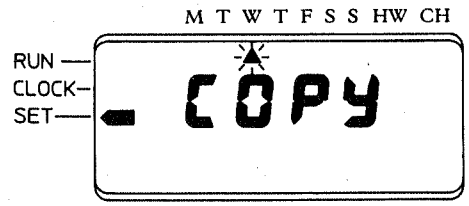


Fig. 8

You can now copy the ON-OFF times onto any other day. This saves having to separately programme days with identical switching times.

Using the (+) and (-) BUTTONS to move the DAY OF THE WEEK INDICATOR to the next day you wish the times to apply and press COPY button, the display will indicate 'IN'. Continue in the same way until the programme has been copied to all the days required. When you have finished copying, simply press ENTER. The word COPY will be replaced with 'day' and the DAY OF THE WEEK INDICATOR will flash.

(f) You can now programme those days that require different times by following the same procedure as described in paras (a) to (d)

NOTE: Your programmer allows up to three ON-OFF periods each day. if you do not wish to use all of these, a switch period can be cancelled by programming the ON time the same as the OFF, eg. 2nd ON at 12.00pm and 2nd OFF at 12.00pm.

SELECT BUTTONS, INDICATORS AND SYMBOLS

The diagram below (Fig. 9) shows the SELECT buttons and indicators referred in Sections SELECT BUTTONS, INDICATORS AND SYMBOLS, PROGRAMME SELECTION AND USING THE ADVANCE of these instructions.

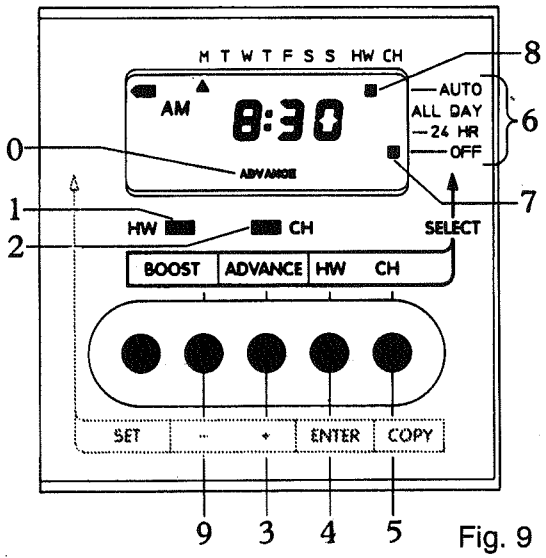


Fig. 9

1 Hot water ON indicator light
2 Central heating ON indicator light
3 Advance button
4 Hot water Programme select button
5 Central heating Programme select button
6 Programme positions
8 Hot water Programme indicator
9 Hot water boost button
10 Advance/boost indicator

PROGRAMME SELECTION

The following programmes can be selected for either HOT WATER alone or HOT WATER and CENTRAL HEATING together.

AUTO — When AUTO is selected, the Programmer will switch ON and OFF according to the switching times held in the memory, i.e. up to three ON-OFF periods per day.

ALL DAY — When ALL DAY is elected, the programmer will switch the system on the 1st ON time and OFF at the 3rd OFF time.

24 HOUR — When 24 HOUR is elected, the system remains on continuously, ignoring all time settings.

OFF — When OFF is selected, the Programmer clock continues to operate but the system remains off.

To select a programme for hot water, press the HW SELECT BUTTON until the HW PROGRAMME INDICATOR is pointing to the required programme, eg. AUTO (Fig. 10)

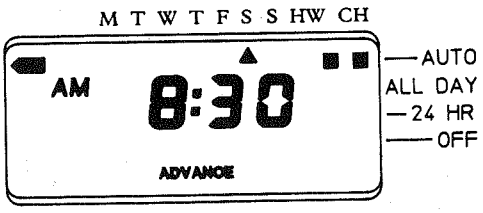


Fig. 10

To select a central heating programme, follow the same procedure, using the CH SELECT BUTTON.

NOTE: When either HOT WATER or HEATING is switched ON, the relevant INDICATOR LIGHT will be illuminated.

USING THE ADVANCE

The ADVANCE facility allows you to bring forward the next ON or OFF period.

(a) In fully pumped mode (p) this brings the central heating ON or OFF.

(b) In gravity mode (g) this brings the central heating and the hot water ON and OFF.

Press the ADVANCE BUTTON once and release. The word ADVANCE will appear on the display (Fig. 11)

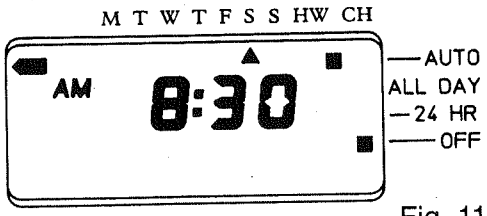


Fig. 11

If the programmer was originally ON, it will now switch OFF and stay off until the next programmed ON time. The opposite will apply if the Programmer was originally OFF. To cancel the advance, simply press the ADVANCE BUTTON again and the word ADVANCE will disappear form the display.

USING THE BOOST

Simply press the BOOST button and release. The word BOOST will appear on the display and the HOT WATER will be switched ON for ONE HOUR then automatically switch off. If the full hour is not required, the BOOST can be cancelled by pressing the BOOST button again.
NOTE: This facility can be used even when the unit is programmed OFF

USING THE RESET BUTTONS

Electronic equipment can, in exceptional circumstances, be affected by electrical interference.

If your Programmer's display or switching programme becomes frozen or scrambled, or if you wish to revert to the factory pre-set programme, you can RESET your Programmer by pressing the MINUS (-) button and ENTER/HW button together (Fig 12)

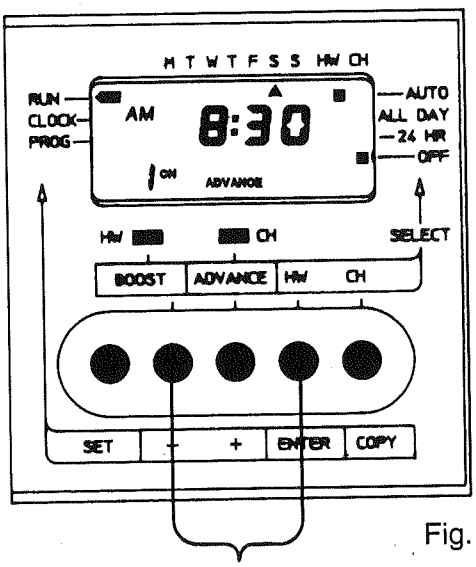


Fig. 12

After using the RESET procedure you will need to reprogramme any changes required to the factory pre-set programme.

BATTERY RESERVE

Your Programmer is fitted with a NON-RECHARGEABLE LONG LIFE BATTERY which will maintain the programmed ON-OFF settings for a period in excess of 2 years. This is more than sufficient to cover all possible power interruptions during the life of the unit.

NOTE: If the power interruption lasts more than 48 hours, it will be necessary to rest the TIME OF DAY once power is restored.

SERVICE AND REPAIR

Your Programmer is not user serviceable. DO NOT TRY TO DISMANTLE THE UNIT.

In the unlikely event of it developing a fault, contact your local HEATING ENGINEER or a qualified ELECTRICIAN, but before doing so, try the RESET procedure described in Section USING THE RESET BUTTONS.

HOW TO USE YOUR TRIANCO BOILER

The boiler is designed to give 24 hour response to domestic hot water with switch in summer/winter position. If a programmer is fitted the system is designed to override any settings giving priority to domestic hot water when the hot water tap is turned on.

It is also recommended that you programme your boiler to come on 30 minutes before you need hot water or central heating as this is the time your boiler will require to allow the hot water store to reach its working temperature.

The boiler is fully automatic once switched on and the water store is up to working temperature, and will supply hot water whenever a tap(s) are turned on.

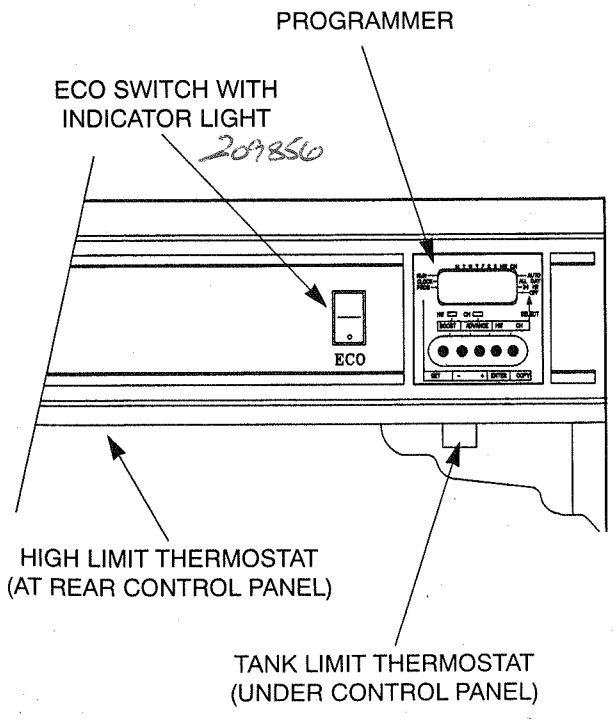
BEFORE FIRING THE BOILER

Ensure the system is full of water and vented of all air, there is sufficient oil in the storage tank and all valves are open.

1. Switch on the electrical supply.
2. Select required position on summer/winter switch (check that programmer is on if fitted).
3. The boiler thermostat is factory set.
4. Set the room thermostat (if fitted) calling for heat.
5. The burner heating the boiler operates automatically cutting in and out according to the heating and hot water demand.

TO TURN THE BOILER OFF

1. Isolate, i.e. switch off the electrical supply to the boiler.



HIGH LIMIT THERMOSTAT (Hand Reset)

The boiler is fitted with 2 high limit thermostats. Should one of the control thermostats malfunction, the limit stats will take over and shut down the boiler.

To reset the limit stats, remove the front door casing and press the reset button on both limit thermostats.

The boiler control limit thermostat is located under the control panel.

Tank high limit thermostat is located at the rear of the control box.

If limit thermostats operate more frequently, consult your service engineer as there may be a fault in the system.

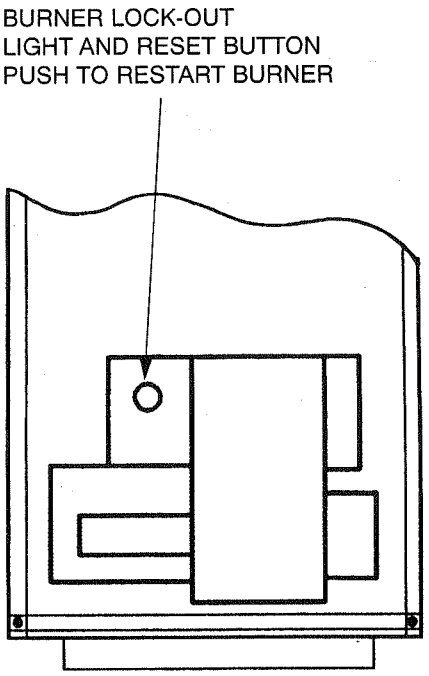
BURNER LOCK-OUT

If the burner fails to light, it will go to lock-out. If this occurs, wait about one minute then remove the front panel and press the reset button to start the burner.

In the event of the burner not firing, wait a further minute and then press the reset button again. If the burner still fails to start, switch off the electrical supply to the boiler.

WARNING - DO NOT ATTEMPT TO START BURNER MORE THAN TWICE.

(See 'Simple Fault Finding' before contacting your Installer).



SYSTEM CONTROLS

ROOM THERMOSTAT

The room thermostat should not be positioned near a source of heat such as a radiator or exposed to the sun as this will cause the central heating to switch off before the room is up to temperature. Follow the manufacturer's instructions for best siting position for the thermostat.

FROST PROTECTION

If the boiler and central heating is shut down for many hours during very cold weather, the water may be in danger of freezing and, as such, it is advisable to protect the installation with a frost thermostat.

Where the system is not protected, the boiler should be left switched on and the room thermostat set to a low setting e.g. 7 C (45 F) to prevent the building temperature falling too low.

If the system is shut down for a long period during very cold weather, it is advisable to completely drain the system. However, frequent draining should be avoided, especially in hard water areas, as this could lead to scaling of the boiler waterways.

OIL

The recommended oil for your boiler is 28 sec. Kerosene (BS 2869: Class C2)

OIL TANK

Always ensure the tank is topped up at regular intervals: do not wait until the tank is nearly empty before refilling, otherwise sludge and water could be sucked into the oil pipe to affect the burnerís operation and reduce pump life.

After a delivery of oil, it is recommended that the oil is allowed to settle in the tank for about half an hour before restarting the burner.

Sludge and water caused by condensation should be drawn off at the drain-cock annually.

SIMPLE FAULT FINDING

NOTE: Before removing any components or insulation please read the advice on Health and Safety in the Insulation & Servicing Instructions.

If the burner fails to start for no apparent reason, make the following checks before calling your Service Engineer.

1 Check for failure in the electrical supply, e.g. a power cut.

2 Check for a blown fuse. If the fuse has blown and on replacement blows again, switch off the mains electrical supply to boiler and call your Service Engineer.

3 Check that there is adequate oil in the tank and the shut-off valves are open.

4. Check for burner lock-out. Press the reset button and burner should fire.
DO NOT PRESS MORE THAN TWICE. Refer to 'Burner lock-out' for further advice.

5. Check for excess water temperature (Refer to 'High Limit Thermostat' for advice).

SERVICING

To ensure efficient and reliable operation of the boiler, it is essential that the oil burner is initially commissioned by a qualified engineer and an annual service is given thereafter, preferably by an OFTEC trained and registered engineer.

Notes:
ELECTRICAL SAFETY CHECKS SHOULD BE CARRIED OUT BY A QUALIFIED ELECTRICAL ENGINEER

(a) It is the responsibility of the Installer to ensure proper commissioning is carried out.

(b) It is a requirement of the boilerís guarantee and any extended warranty that an annual service is carried out by a qualified engineer.

Commissioning Engineer

Signature .....

Company Name .....

.....

Address .....

.....

.....

.....

Tel. No: .....

TRIANCO REDFYRE
CUSTOMER AFTER SALES SERVICE INFORMATION

A step by step guide to reporting a fault with your appliance

A qualified field SERVICE ENGINEER is available to attend a breakdown or manufacturing fault occurring whilst the appliance is under guarantee.

No charge will be made for parts and/or labour providing:

- An appliance fault is found and the appliance has been installed and commissioned within the past 12 months. Reasonable evidence of this must be supplied on request. A full service must be carried out every 12 months in order for the guarantee to be valid. Standard terms and conditions of guarantee apply - see separate leaflet

A charge will be made where:

- Our Field Service Engineer finds no fault with the appliance (see note below).

  or

- The cause of a breakdown is due to other parts of the plumbing/heating system (including oil line/lack of oil), or with equipment not supplied by Trianco Redfyre.

  or

- The appliance has been installed for over 24 months, and has no extended warranty agreement.

  or

- The appliance has not been correctly installed, commissioned or serviced as recommended (see commissioning, installation and servicing instructions)

NOTE: Burner nozzles are excluded from the manufacturers guarantee.

Over 50% of all service calls made are found to have no appliance fault.

What to do in the event of an appliance fault or breakdown:

Step 1: Always contact your installer or commissioning engineer in the first instance, who must thoroughly check all his work PRIOR to requesting a service visit from Trianco Redfyre.

Step 2: If your appliance has developed an in-guarantee fault your installer should contact Trianco Redfyre Service Centre for assistance.

What happens if may installer/engineer is unavailable?

Step 3: Contact Trianco Redfyre Direct. We will provide you with the name and telephone number of our Service Agent. However, a charge may apply if the fault is not covered by the appliance guarantee (payment will be requested on site by our independent Service Agent).

PLEASE NOTE:
Unauthorised invoices for attendance and repair work carried out on this appliance by any third party will not be accepted by Trianco Redfyre.

SERVICE CENTRE
Tel: 0114 257 2300
Service Desk Ext. 232
Customer Services Manager Ext. 232

TECHNICAL SUPPORT
Technical Helpline
Direct Line 0114 257 2301
Hours of business Monday to Friday 8.30am-5.00pm

2. INTRODUCTION

The Trianco EuroStar Combi Boiler has been designed to conform to European Directive/Standards BED 92/42 EEC LVD EN 60335-1 EMC 89/336/EEC.

The boiler is supplied suitably equipped for connection to a conventional chimney or they can be converted into a room sealed balanced flue appliance by using any of the Trianco Balanced Flue Kits.

These kits allow the boiler to be installed in a wide variety of site conditions, from low level discharge through the wall, to high level roof discharge. (See Balanced Flue Kits for details - Section 6).

As a balance and flue version of the EuroStar Combi is a room sealed appliance which conforms to the requirements specified in OFSA100. Both flue types are suitable for installation in a garage.

3. TECHNICAL INFORMATION

The EuroStar Combi boiler is suitable for all normal open vented central heating and indirect hot water systems and can also be used with sealed systems up to a working pressure of 3 bar with the appropriate sealed system safety equipment.

Flow and return pipe connections are provided to facilitate connection to the heating and hot water systems.

All annual routine servicing can be carried out form the front of the boiler, but if the front of the boiler is to be installed below a worktop this must be made removable for the provision of fitting replacement parts in the future.

The boiler is fully automatic in operation and incorporate all necessary safety controls to ensure safe and reliable operation.

The Trianco EuroStar Combi boiler is supplied with the burner set for Kerosene 28 sec. BS 2869 Class C fuel to meet the Building Regulation requirements for low level flue discharge. It is recommended this fuel is also used when the boiler is connected to a conventional chimney because of the clean burning characteristics of Kerosene.

DHW Flow Rate

Flow rate is affected by pressure drop in pipework, therefore if 15mm pipework is more than 3 metres from the tap to the boiler 22mm should be used instead to achieve flow rates at the inlet pressures indicated on the DHW Flow Rate Graph.

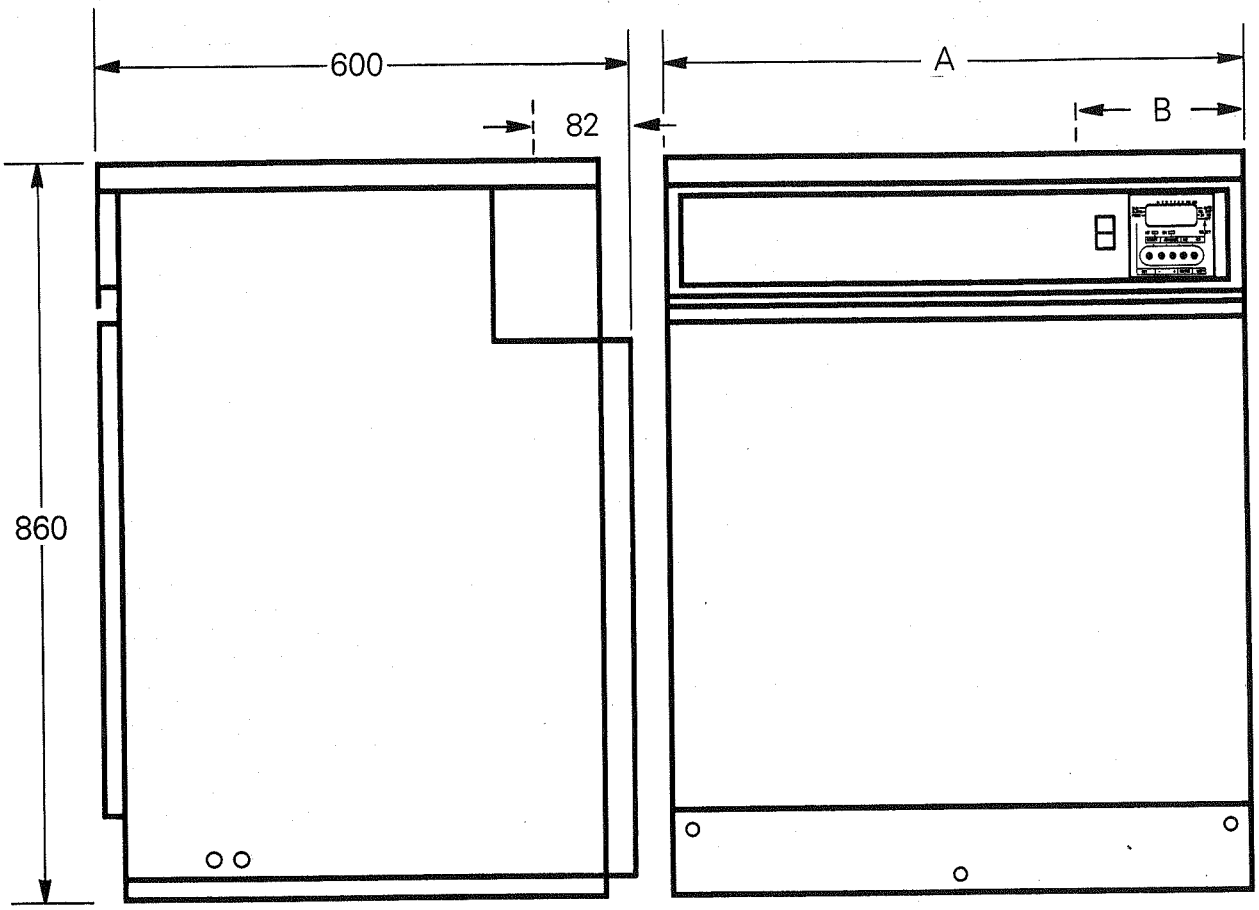
IF THE APPLIANCE IS TO BE INSTALLED WHERE THE TEMPORARY HARDNESS OF THE WATER SUPPLY IS HIGH, THEN A IN LINE SCALE INHIBITOR MUST BE FITTED (150 PPM MAXIMUM HARDNESS, IF IN DOUBT CONSULT THE LOCAL WATER AUTHORITY)

TO OBTAIN THE TEMPORARY HARDNESS FIGURE TELEPHONE YOUR LOCAL WATER AUTHORITY QUOTING YOUR POSTAL CODE.

THE PERSON(S) WHO INSTALLS THIS APPLIANCE, COMMISSIONS, SERVICES OR CARRIES OUT ANY REMEDIAL WORK, IF ELECTRICAL FAULT FINDING, MUST HAVE SUITABLE ENGINEERING QUALIFICATIONS

TECHNICAL DATA

	COMBI 65		COMBI 90	
	METRIC	IMPERIAL	METRIC	IMPERIAL
Rated Input	22.2kw	75,700Btu/h	30kw	102,800Btu/h
Rated Output	19.5kw	66,500Btu/h	27.5kw	93,800Btu/h
Oil Burner	See Burner detail leaflet			
Weight (empty)	147kg	324lb	170kg	375lb
Water content	82.3L	18.5 gallons	90 L	20.5 gallons
C H Flow & Return	22mm		22mm	
DHW Inlet & Outlet	15mm		15mm	
Maximum operating pressure	3 bar	43.5psi	3 bar	43.5 psi
Test Pressure	4.5 bar	65.3 psi	4.5 bar	65.3 psi
Water side resistance 10 °C diff.	64 mbar	25.6 in wg	85 mbar	34 in wg
Water side Resistance 20 °C diff	22 m bar	8.8 wg	22.5 mbar	9 wg
Overall Height	860mm	34 in	860mm	34 in
Overall Width	585mm	23 in	685mm	30 in
Overall Depth mm (in)	600 mm	23.6 in	600mm	23.6 in
Control Thermostat	Ranco ODD Type K36		Ranco ODD Type K36	
Overheat Thermostat	Ranco LM 7 (Manual Reset)		Ranco LM 7 (Manual Reset)	
Tank Control Thermostat	Ranco ODD Type K36		Ranco ODD Type K36	
Tank Economy Thermostats	Ranco ODD Type K36		Ranco ODD Type K36	
DHW Thermostat	Ranco ODD Type K36		Ranco ODD Type K36	
Electricity Supply	230V - 50 Hz Fused at 5A		230V - 50 Hz Fused at 5A	
Pump	Grundfos		Grundfos	
Priority Valve	Danfoss Randall HS A3ND		Danfoss Randall HS A3ND	
Expansion Vessel	Zilmet 10L charge 0.5mba		Zilmet 10L charge 0.5mbar	
Tank Overheat Thermostat	Ranco LM 7 (Manual Reset)		Ranco LM 7 (Manual Reset)	
Pressure Gauge	0-4 bar		0-4 bar	
Flow Switch	SIKA		SIKA	
Pressure Relief Valve	3 bar		3 bar	
Max. Flow Temp CH	75°C		75°C	
Flow Rate DHW @ 1.8 BAR	-		19 litres	
Flow Rate DHW @ 1.5 BAR	16 litres		-	
Available Head System	3 m	9.75 ft	3m	9.75 ft
Flue Gas Temperature	215 C		215 C	
Required flue draught	12.5mm	0.05 in	12.5mm	0.05 in
Fuel	Kerosene 28s BS 2869 Class C2		Kerosene 28s BS 2869 Class C2	
Flue Gas Mass Flow Rates	0.0089864 kg/sec		0.0126569 kg/sec	
Starting Current	5.5 amp		5.5 amp	
Running Current	1.2 amp		1.2 amps	
Flue Dia.	100 or 125mm		100 or 125mm	



EuroStar Combi	65	90
DIM A	585	685
DIM B	200	226

SPACE REQUIRED FOR INSTALLATION AND MAINTENANCE		
REAR	NIL (mm)	NIL (in)
SIDE LH/RH	20 (mm)	3/4 (in)
FRONT	600 (mm)	24 (in)
TOP	450 (mm)	18 (in)
BASE	NIL (mm)	NIL (in)

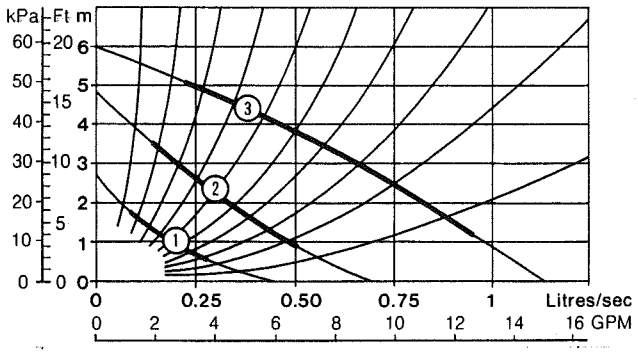
THE BOILER MAY BE INSTALLED BELOW A KITCHEN WORK SURFACE SO LONG AS THE SECTION IS REMOVABLE AND THE MAINTENANCE CLEARANCE IS MAINTAINED.

CLEARANCE UNDER WORK SURFACE 5mm MINIMUM

Fig 1 **OUTLINE DIMENSIONS/CLEARANCE**

Grundfos 15/60 (EuroStar Combi 90)

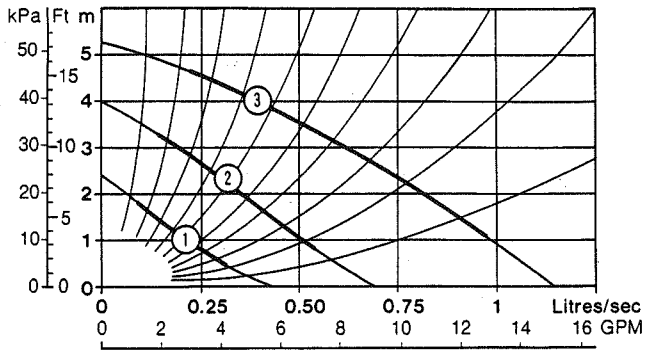
PUMP FLOW CURVE



Note: If the pump is run on speed setting 1, domestic hot water availability is impaired.

Grundfos 15/50 (EuroStar Combi 65)

PUMP FLOW CURVE



Note: If the pump is run on speed setting 1, domestic hot water availability is impaired.

Fig 2

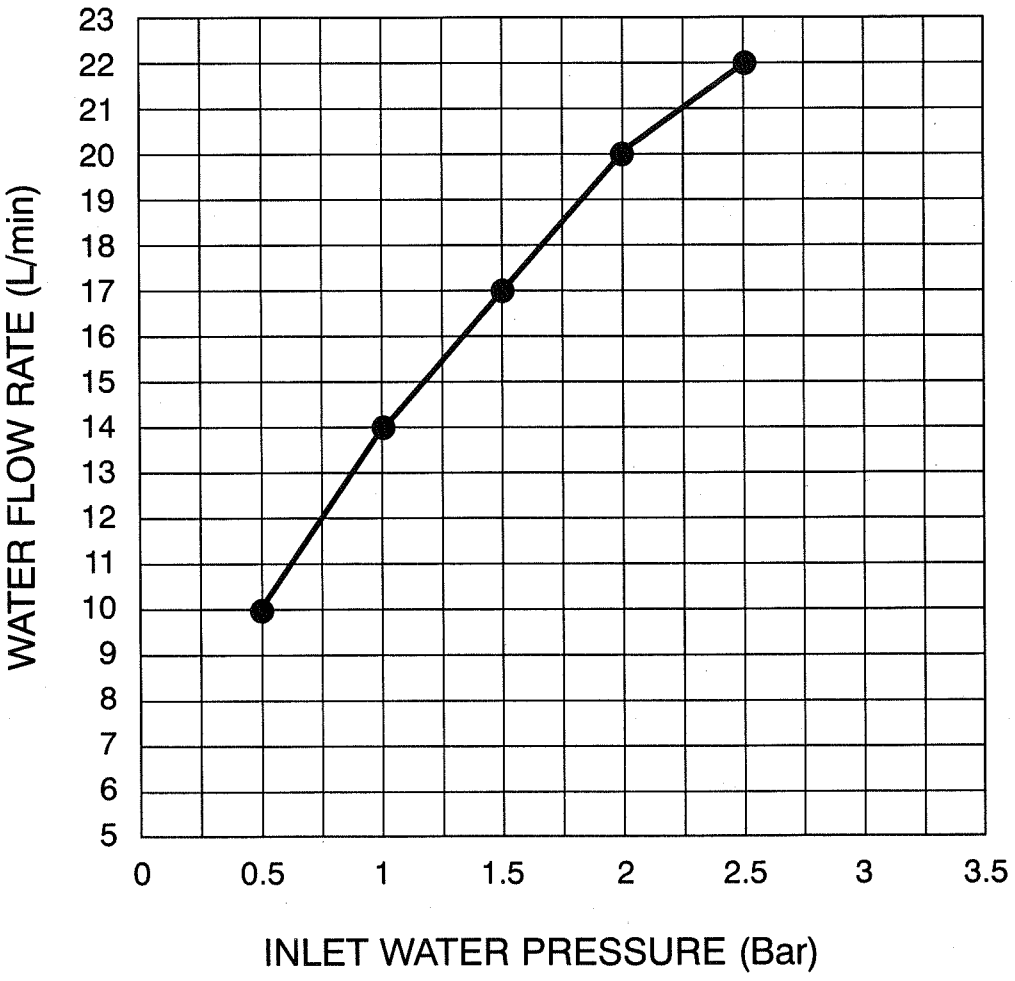
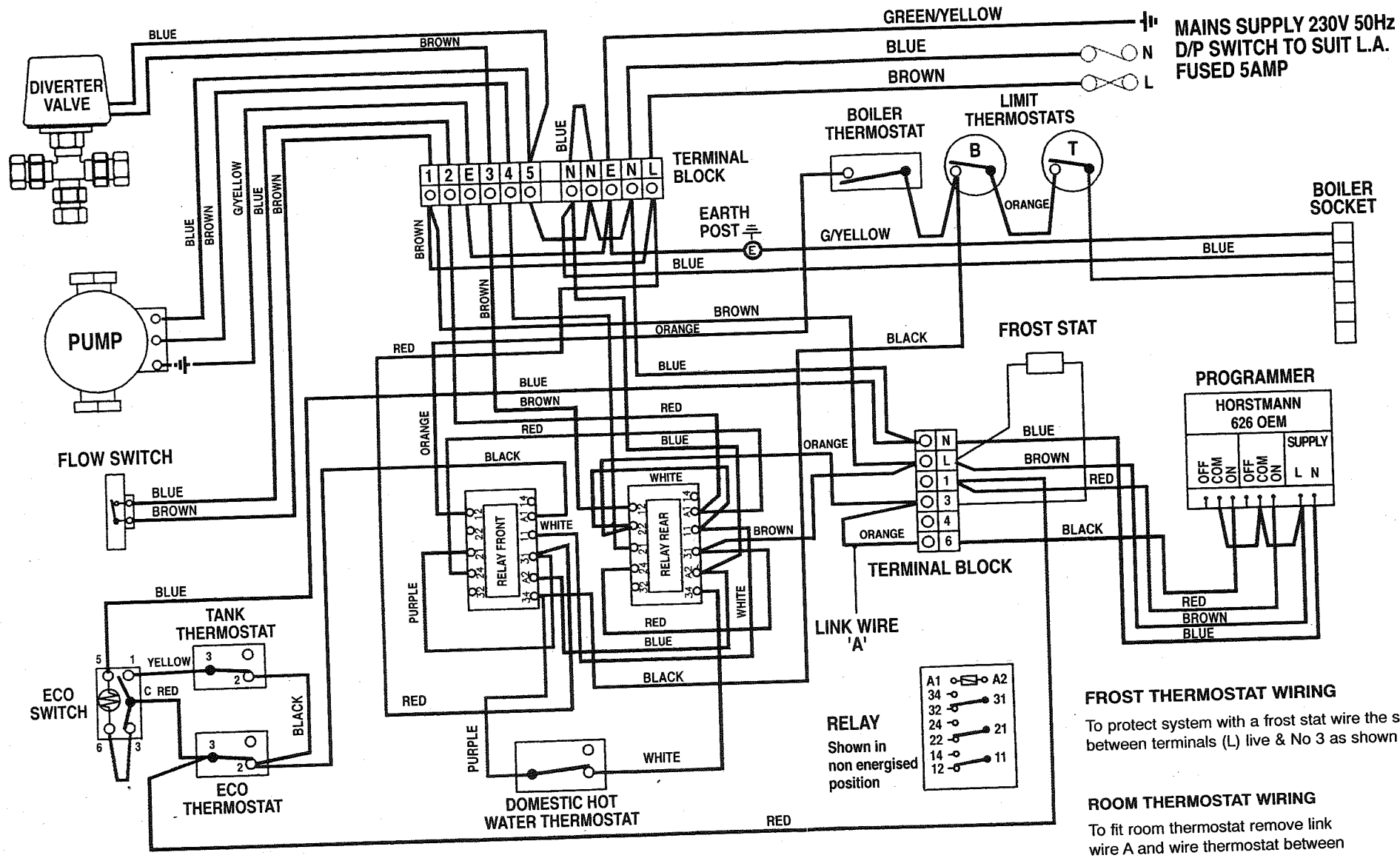


Fig 3

FLOW GRAPH

Fig 4



FROST THERMOSTAT WIRING

To protect system with a frost stat wire the stat between terminals (L) live & No 3 as shown

ROOM THERMOSTAT WIRING

To fit room thermostat remove link wire A and wire thermostat between terminals 3 and 6

4. INSTALLATION

Regulations

Installation of the boiler must comply with the following British Standards and Regulations:

BS 5410: Part 1 - Code of Practice for Oil Firing.

BS 5449 - Forced Circulation Hot Water Central Heating Systems.

The Building Regulations -
Part 'G' & 'J' (England and Wales)
Part 'F' Section 111 (Scotland)
Part 'L' (Northern Ireland)

BS 7671
Local Water Undertakings By-laws
OFTEC Installation Requirements for Oil Fired Boilers and Oil Storage Tanks.

Health and Safety at Work Act

The installer should be aware of his responsibilities under the Act and provide, where necessary, appropriate protection for persons carrying out the installation.

In the interest of safety, the boiler should be installed and commissioned by a competent engineer, preferably OFTEC trained and registered.

A useful guide to 'Safe Working Practices for Oil Firing Technicians' is published by OFTEC.

The installer of the boiler must be registered as competent UDHWSS installer.

ELECTRICAL WORK SHOULD BE CARRIED OUT BY A QUALIFIED ELECTRICAL ENGINEER

Siting the Boiler

Sound Levels

Whilst the low sound level of the Trianco EuroStar Combi boiler makes it eminently suitable for kitchen and utility room installation, the following aspects should be considered before installation:

(a) Some people are particularly sensitive to even low noise levels so this aspect should be discussed with the householder.

(b) Small rooms tend to amplify noise, particularly if the wall construction is hollow or the surface tiled.

(c) A chimney passing through a bedroom can sometimes transmit noise.

(d) Low level flue terminals produce some exhaust noise, so care should be taken when siting adjacent to a neighbouring property.

Clearance and service access

When siting the boiler, ensure adequate clearance is allowed for making water and flue connections. The boiler can be fully serviced from the front, but if fitted below a worktop this must be made removable for the provision of fitting replacement parts in the future.

Hearth

A none combustible hearth is not required. However, the floor must be level and capable of supporting the installed weight of the boiler, including its water content.

WATER SYSTEMS

Heating

The installation must comply with the requirements of BS 6798 and BS 5499. Maximum water temperature is 86 C. The appliance is supplied with 2 stop valves (flow and return) terminating in compression connections (22mm). The appliance also incorporates the following components:-

Pump	On the return to the boiler
Expansion Vessel	10 litres, pre-charged to 0.5 bar
Pressure Relief Valve	Set to operate at 3 bar

A system schematic is given in Fig. 5 & 6.

Drain Cock

Drain cock(s) should be fitted at the lowest point in the system to enable the water to be drained. A drain cock is fitted to the front lower section of the storage tank.

Expansion Vessel Requirements

The boiler is supplied with a 10 litre expansion vessel, capable of accepting the 82 litre stored water expansion at a cold fill of up to 1 bar.

An additional expansion vessel must be fitted if a system water volume exceeds 42 litres not including boiler or if the initial system pressure is above 0.75 bar.

For systems having a larger capacity, multiply the total water content (boiler and system) by the factor to obtain vessel size in litres.

ADDITIONAL E. VESSEL REQUIREMENT

VESSEL CHARGE AND INITIAL SYSTEM PRESSURE	0.5 bar	1.0 bar	1.5 bar
MULTIPLICATION FACTOR TO GIVE TOTAL EXPANSION VESSEL VOLUME	0.8 bar	0.11 bar	0.16 bar

EXAMPLE

A system to be filled to 1 bar cold fill (vessel to be charged 1 bar) has 82 litres of stored water and 60 litres of water in the central heating system, requires a total expansion vessel of:
82 + 60 = 142 litres
Multiply by factor 0.11 (from chart)
= 15.62 litres = Total expansion volume
Expansion vessel supplied = 10 litres
We therefore need 15.62 - 10 litres = 5.62 of extra expansion.

An additional vessel of at least 5.62 litres would therefore be required to be fitted.

Note: if the appliance pressure gauge indicates a rise of pressure to 2.6 bar or higher with the radiator circuit operating at full output of the boiler, an additional expansion vessel will be required in the system.

System Filling

The appliance is designed for connection to sealed central heating water systems. Fig 6 shows a typical system design.

A sealed system must only be fitted by a competent person using one of the approved methods shown in Fig. 7 & 8. The system should incorporate the connections appropriate to one of these methods.

METHOD OF MAKEUP:

Water loss from the system should be replaced from a makeup vessel connected to the system through a non return valve on the return side of the heating circuit. This vessel should be higher than the top of the system.
Alternatively provision for makeup can be made by pre-pressurisation of the system via a temporary hose connection and through a double check valve (non return) and stop valve.

FILLING:
There shall be no direct connection to the mains water supply, even though a non return water valve, without the approval of the Local Water Authority.

System Cleaning and Inhibitor Treatment Before commissioning the appliance it is essential to clean the installation in accordance with the procedure set out in BS 7593. This involves the application of a cleanser, and allowing it to circulate around the whole system for a specified time, then flushing to drain. It is important to select the cleanser appropriate to the situation, i.e. for a new installation, or for an existing system where the boiler is being replaced. In the case of boiler replacement, it is good practice to clean the system prior to the installation of the new boiler.

It is recommended that an inhibitor is added to protect the system. The Inhibitor should be added at the time of the final fill, in accordance with the manufacturer's instructions.

Domestic Hot Water

The mains supply pressure should be between 1 and 5 bar but if in excess of 5 bar, then a pressure reducing valve must be fitted before the inlet valve. The final 600mm (24in) of the mains water supply pipe to the boiler must be copper. If the appliance is installed in an area where the temporary hardness of the water supply is high, say over 150 ppm, then fitting of an inline scale inhibitor must be fitted. Consult the Local Water Authority if in doubt.
For specific information relating to fittings (e.g. showers, washing machines, etc.) suitable connection in the DHW circuit, consult the Local Water Authority if in doubt.

DOMESTIC HOT/COLD WATER SUPPLY TAPS AND MIXING TAPS:

All equipment designed for use at mains are suitable.

SHOWERS AND BIDETS:

Any mains pressure shower or bidet complying with the Local Water Authority byelaws are suitable.

Water System Connections

Heating

Connect the appliance to the water system using the two stop valves
supplied (copper compression fittings 22mm).
The flow connection is on the right.
Using not less than 15mm copper pipe work, the pressure relief valve must be piped to the tundish, in accordance with details given in fig. 12 and section G3 of the Building Regulations 1991 approved document.

Domestic Hot Water

Connect the incoming cold water using the ball valve supplied (copper compression fitting 15mm).

Connect the DHW flow to the hot water system (copper compression fitting 15mm.Connect oil and flue system as detailed in Sections 4. OIL SUPPLY and 5. FLUE SYSTEM.

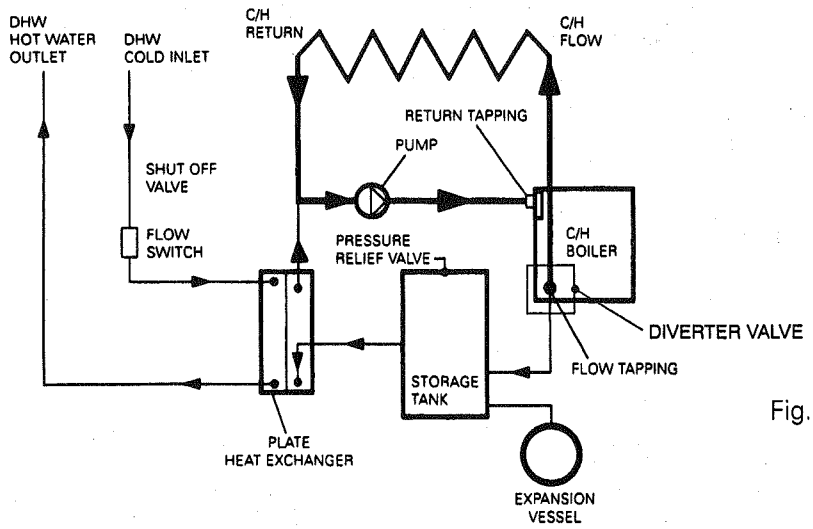


Fig. 5a

EUROSTAR COMBI SCHEMATIC LAYOUT CENTRAL HEATING MODE

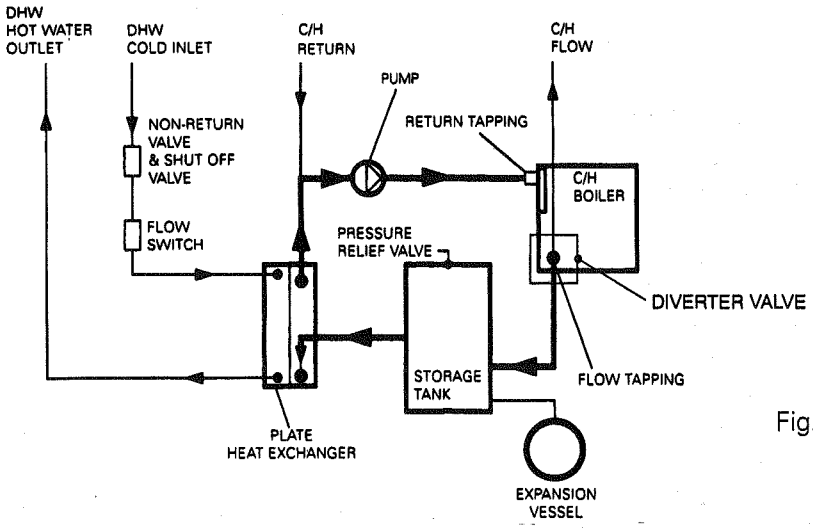


Fig. 5b

EUROSTAR COMBI SCHEMATIC LAYOUT DOMESTIC HOT WATER MODE

Fig 5 **EUROSTAR COMBI SCHEMATIC LAYOUT**

Note: appliance incorporates Pump Expansion Vessel, Pressure Gauge, Air Vent and Safety Valve.

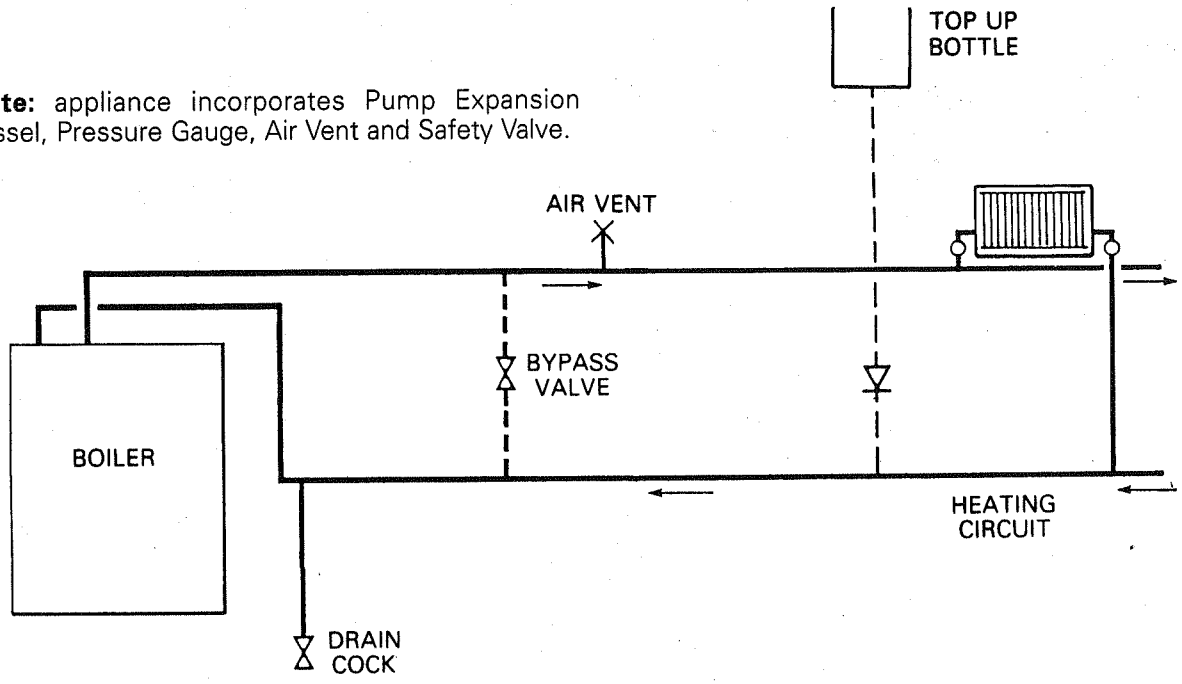


Fig 6 **SEALED SYSTEM PIPING SCHEMATIC DIAGRAM**

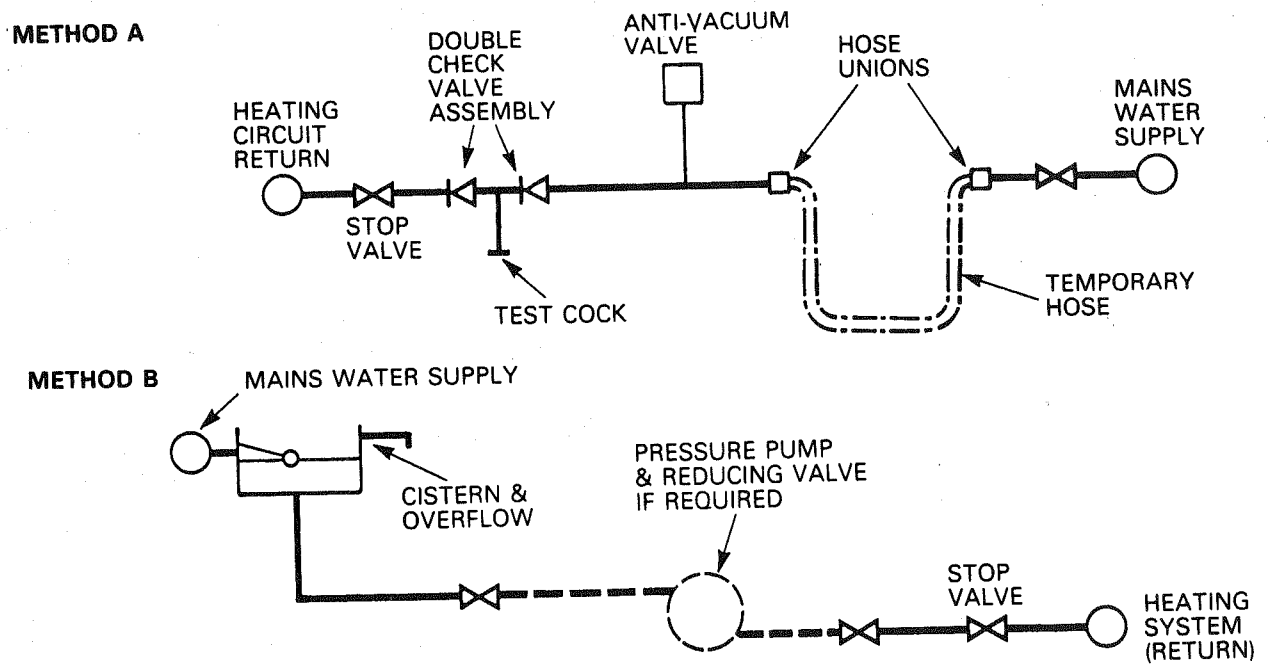


Fig 7 **ALTERNATIVE METHODS OF FILLING A SEALED SYSTEM**

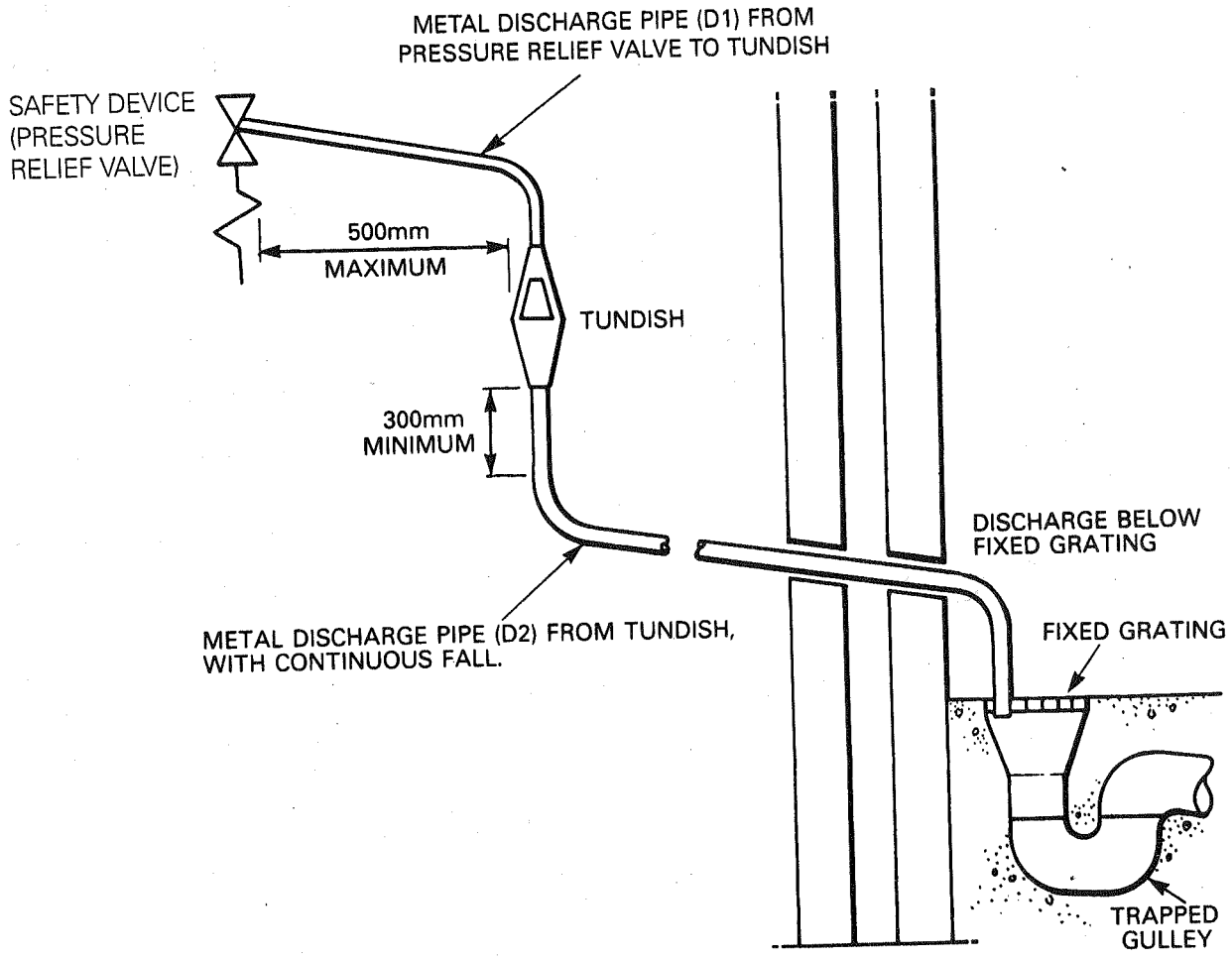


Fig 8 **TYPICAL DISCHARGE PIPE ARRANGEMENT**

Combustion Air (Conventional flue boilers)

The provision of an adequate supply of combustion air is essential for the efficient and safe operation of the boiler. The air opening should be positioned so as to cause the least possible draught to the occupants and located so it is not liable to be accidentally blocked.

British Standard Code of Practice for Oil Firing BS 5410: Part 1 requires a permanent air inlet opening of 550mm^2 per kW of boiler rated output above 5kW.

The following air openings are therefore required for Trianco EuroStar Combi boilers:

Minimum FREE Area Opening opening 'A'=113cm^2 (18in^2)

EuroStar Combi	Minimum FREE Area
65	7730mm^2
90	11760mm^2

Ventilation (Conventional flue boilers)

Where the boiler is installed in a compartment or a confined space, ventilation openings are also required to prevent overheating of the appliance controls (the ventilation areas are shown in Fig 9).

Extractor Fan (conventional flue boilers)

If the boiler room has an extractor fan, the combustion performance of the appliance must not be affected when the fan is running and all doors and windows are closed. A flue gas check on the CO2% and smoke must be carried out to provide that combustion is satisfactory.

Ventilation (Room sealed balanced flue boilers)

Although no openings are required for the supply of combustion air (this comes from outside through the air duct system direct to the burner), ventilation is, however, necessary if the boiler is installed in a compartment or a confined space in order to prevent overheating of the boiler controls (See Fig. 10) for ventilation openings.

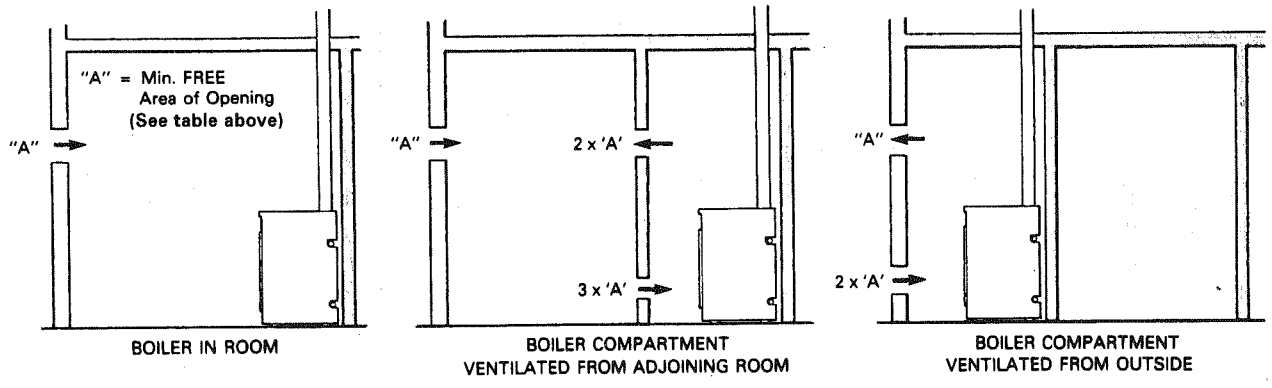


Fig 9 **AIR SUPPLY & VENTILATION FOR CONVENTIONAL FLUE BOILERS**

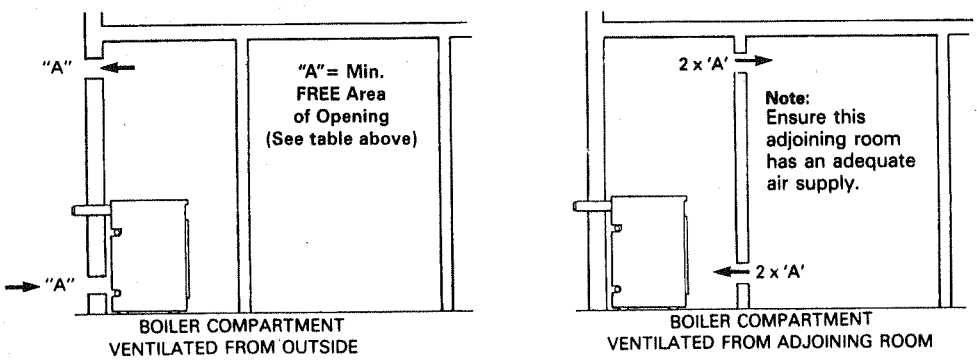


Fig 10 **VENTILATION FOR ROOM SEALED BALANCED FLUE BOILERS IN A COMPARTMENT**

Electrical Supply
230V 1 Phase 50Hz (Fused 5 Amp)

Note: THIS APPLIANCE MUST BE EARTHED

All electrical wiring must be carried out by a qualified electrician in accordance with current I.E.E. Regulations and any Local Regulations that may apply.

The 230v - 50Hz electrical supply must be fused by a double pole switch with a contact separation of at least 3mm in both poles, and shuttered socket outlet (both complying with the requirements of BS 1363) adjacent to the boiler. Fuse supply at 5A. The minimum requirement for the power supply cable should be a PVC sheathed flexible cord, at least 0.75mm (24 x 0.2mm) (code designation H05 VV - For H05 VVH2-F) as specified in table 16 of BS 6500.

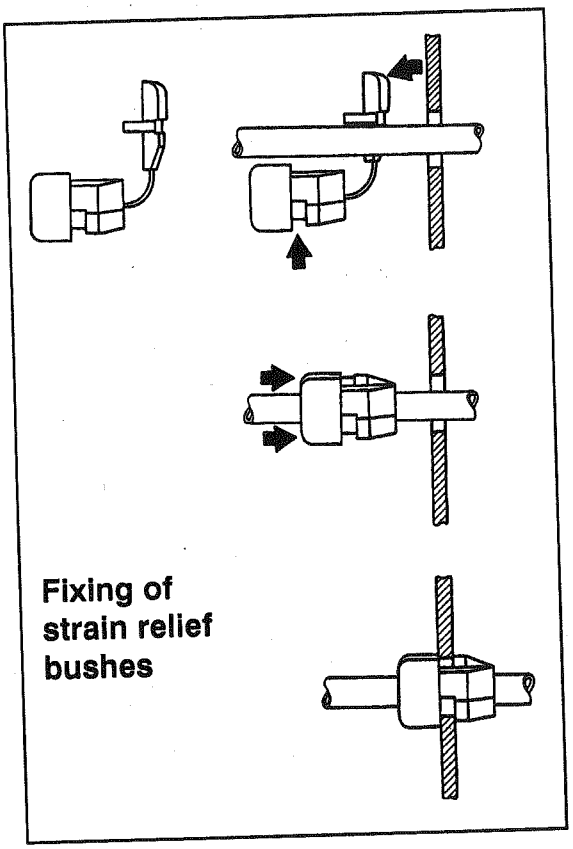
This appliance MUST be earthed and electrical supply earth cable must be of greater length than the current carrying conductor cables (i.e., live and neutral supply cables).

Terminal connections are also provided in the control panel for ancillary controls.

See wiring diagram.

Warning - High and Low Voltage

In certain parts of the country, where there is a known risk of high or low voltage fluctuations, the oil burner shall be prevented from starting by the use of a voltage sensitive device if the voltage drops or increases sufficiently to endanger the installation.



Fixing of strain relief bushes

5. OIL SUPPLY

The oil burner is factory set to burn 28 sec. Kerosene.

Note: Only kerosene is permitted for low level flue discharge.

Oil Storage Tanks

Size and Location of Tanks

The tank should be large enough to allow for economic deliveries and be located in the most unobtrusive position, having regard to the need for safety, filling, maintenance (if steel tank) and the head of oil required.

Whilst it is highly unlikely that a fire could start from a domestic oil tank, it does however need to be protected form a fire that may originate in a nearby building therefore should not be located nearer than 1.8 metres form a site boundary. Where a tank has to be less than 1.8 metres, the building wall must not have any openings other than small ventilation openings. The wall shall have a half hour resistance to an internal fire and extend 1.8 metres from any part of the tank.

Alternatively, a non-combustible radiation barrier must be provided which meets the requirements of BS 5410 Part 1: 1977. This standard applies to tanks up to a capacity of 3,400 litres which is deemed the maximum size for a single family dwelling.

Steel Tanks

Steel tanks should comply with the requirements of BS799, Pt.5: 1987 and mounted on brick or block piers with a waterproof membrane between the piers and tank.

The tank should be fitted with the fill and vent connection (weather protected), a drain-off cock, shut off valve and an oil level indicator.

Plastic Tanks

Polyethylene tanks are now widely used because of their advantages over traditional steel tanks:

a) They do not need pier supports and can be mounted directly on any flat surface giving uniform support for the tank base

b) They do not corrode and therefore never need painting.

c) They are easier to handle because of their weight.

d) They have a 10 year manufacturer's guarantee.

Plastic tanks should be fitted with similar components to those used with steel tanks.

Oil Supply Line

A long life flexible oil hose is supplied with the boiler, a filter and shut-off valve are required.

The oil shut-off valve should be fitted as close to the burner as practicable to enable the burner to be disconnected without undue loss of oil. The filter must be connected in the oil supply pipe and positioned outside the building.

Fire Valve

A fire-valve must be fitted in the oil line outside the building with its sensing phial positioned within the boiler casing below the control panel. A clip is provided for retaining the phial.

All oil joints must be completely sealed and the total pipe run thoroughly flushed out before connecting to the burner. No soldered joints are permitted in the oil line.

The oil line can be fed into the back of the boiler base tray or through the holes at the side.

Single pipe oil supply (Fig 11)

When, the bottom of the oil supply tank is above the burner, a single pipe gravity system can be used. The oil supply pipe must be connected to the suction port on the burner pump via the flexible hose.

Two pipe Oil Supply (Fig 12)

Where, the bottom of the oil storage tank is below the burner, a two-pipe suction lift system is necessary.

When using a two pipe system, it is important that the by-pass screw is fitted , on the BFP II pump remove the end cover and filter, then remove the 'U' washer by unscrewing the bottom screw, then replace the screw ensuring it is fully inserted. An additional flexible hose is also required.

A spring loaded non-return must be fitted in the suction line to stop the oil running back to the tank. A filter, shut-off valve and fire valve must be fitted in the line.

No valves are permitted in the return line which must remain unobstructed at all times.

Notes:

(1) The pump suction should not exceed 0.4 bar, other wise dissolved gas will be released form the oil to affect combustion.

(2) The return pipe must end at the same level as the suction outlet to prevent loss of prime.

(3) The outlet from the tank should be approximately 75mm (3 in) above the bottom to prevent sediment and water being drawn into the supply pipe.

Oil De-aerator- Single Pipe Supply (Fig. 13)

Where a two-pipe suction lift system is required , but the return pipe is too long, or impractical to run., a de-aerator can be used. The burner is piped as for a two-pipe system up to the De-aerator but only a single pipe is required to be run back to the oil storage tank. A non-return valve is not required with this system but the bypass plug must be fitted in the pump as for two pipe systems.

The Oil De-aerator should be fitted close to the boiler, but not inside the building.

Oil De-aerators are available from most Builders Merchants and some Oil Tank manufacturers.

MAXIMUM OIL SUPPLY LINE LENGTH 'L'

LIFT 'H' METRES.		0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
PIPE 6mm ID	MAXIMUM LENGTH (METRES)	10	21	31	41	52	62	73	83
PIPE 8mmID		33	66	98	100	100	100	100	100

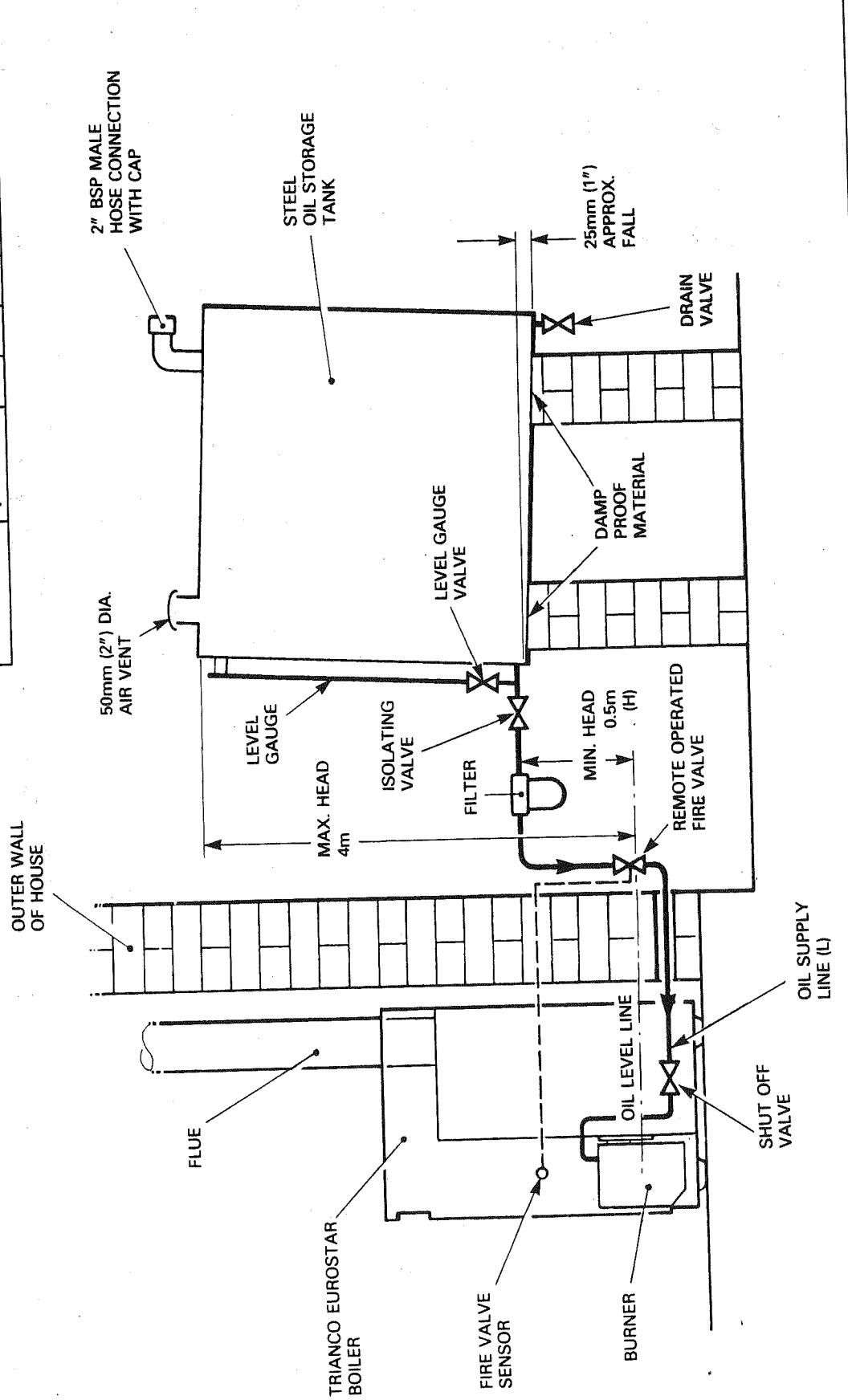


Fig 11 **SINGLE PIPE OIL SUPPLY**

MAXIMUM OIL SUPPLY LINE LENGTH 'L'

LIFT 'H' METRES.		0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
PIPE 6mm ID	MAXIMUM LENGTH (METRES)	48	42	36	30	24	18	11	5
PIPE 8mmID		100	100	100	94	75	55	36	16
PIPE 10MM ID		100	100	100	100	100	100	88	40

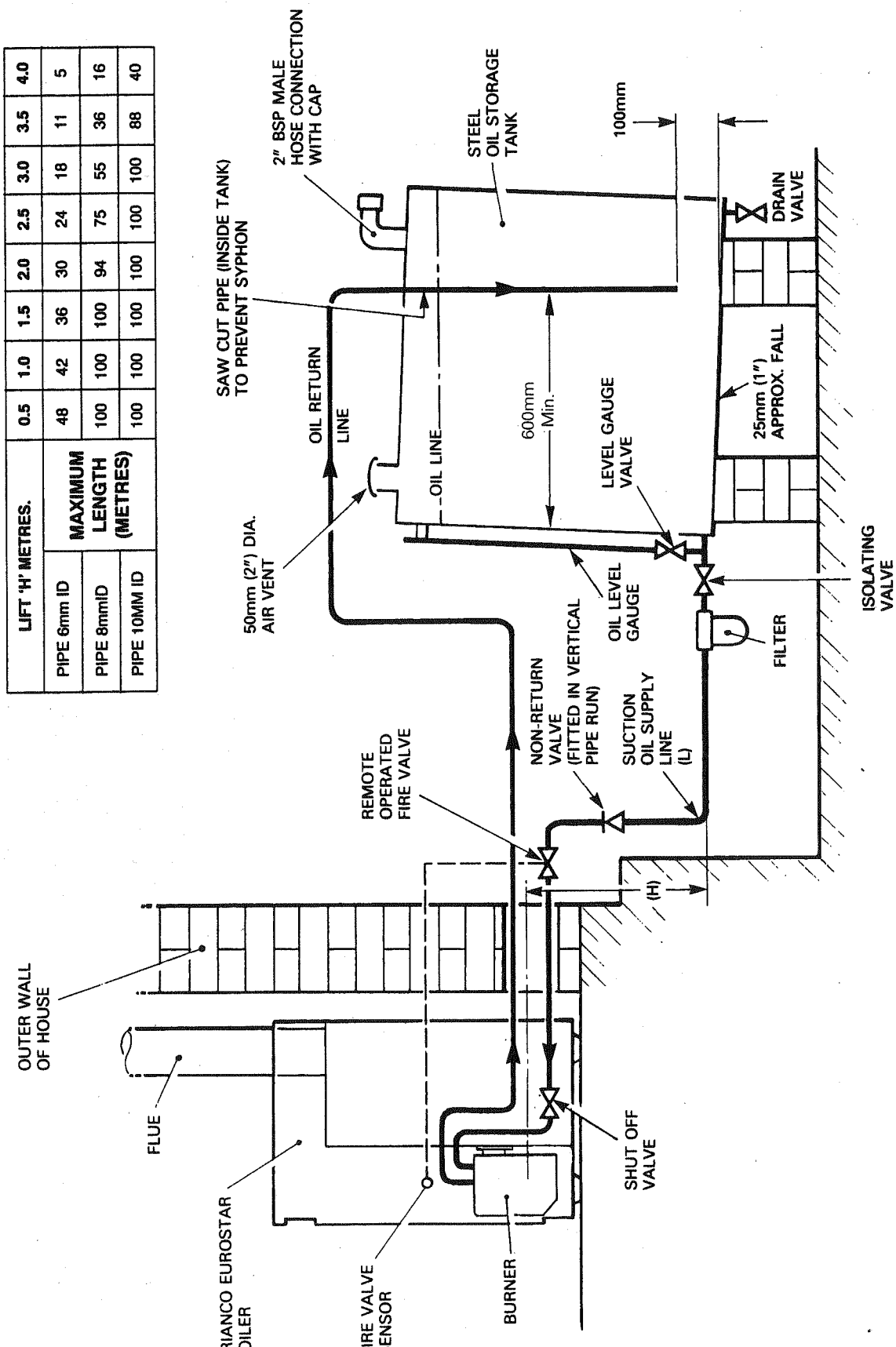


Fig 12 **TWO PIPE OIL SUPPLY**

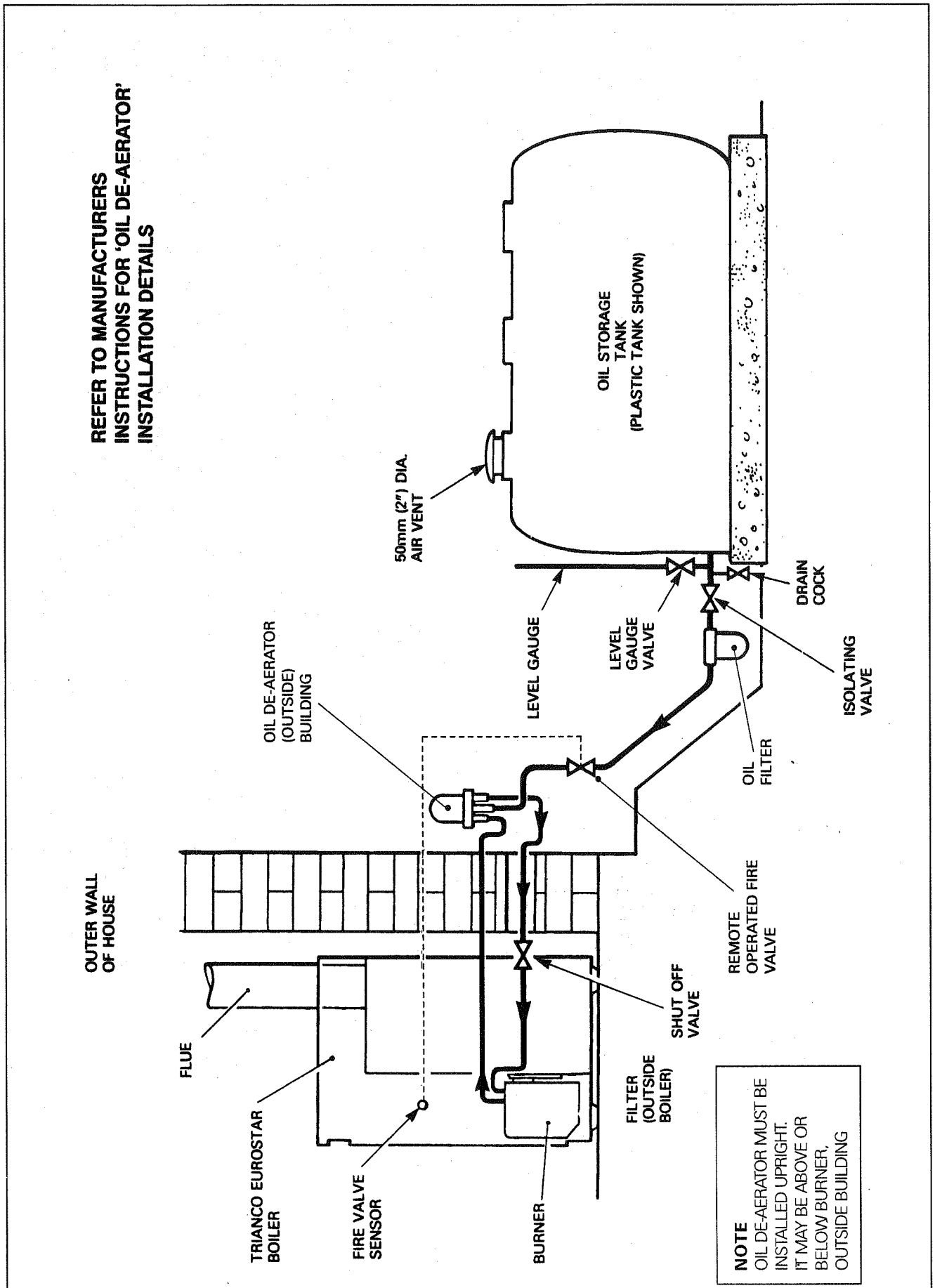


Fig 13 **DE-AERATED OIL SUPPLY INSTALLATION**

6. FLUE SYSTEM

To evacuate the products of combustion safely and thoroughly, the boiler must have an efficient flue system. The design and construction of the Trianco Balanced Flue Kits already takes these factors into account so the following guidance notes are for conventional chimneys. Reference should also be made to BS 5410 Part 1 if further information is required on conventional chimneys.

Conventional chimney (See Fig. 14)

(a) The chimney should rise as vertically as possible and terminate at a point not subject to down draughts or wind eddies.

(b) Brick and masonry chimneys must be lined with a moisture and acid resistant liner. The use of a flexible stainless steel liner is a convenient method of lining an existing chimney and this should be back filled with 'Vermiculite' or similar insulating material to retain heat.

Flexible liner must be suitable for Kerosene 28 sec.

A flexible liner should also be used in chimneys fitted with large diameter clay liners to reduce the flue bore and improve the thermal insulation.

Notes:

(1) In view of the EuroStar's high thermal efficiency, it is important that a liner is fitted, otherwise condensation problems will result.

(2) Before fitting a liner, the chimney must be thoroughly cleaned free from all traces of soot and scale.

(c) A factory made insulated chimney complying with BS 4543 Part 3 may be considered as an alternative to a structural chimney both for new and existing buildings.

(d) The in-built flue gas resistance of the EuroStar is such that it allows the boiler to operate reliably over the wide range of chimney draughts. The use of a draught-stabiliser should not be necessary nor is it desirable since it allows flue noise to be emitted into the room and it could cool the chimney condensing conditions.

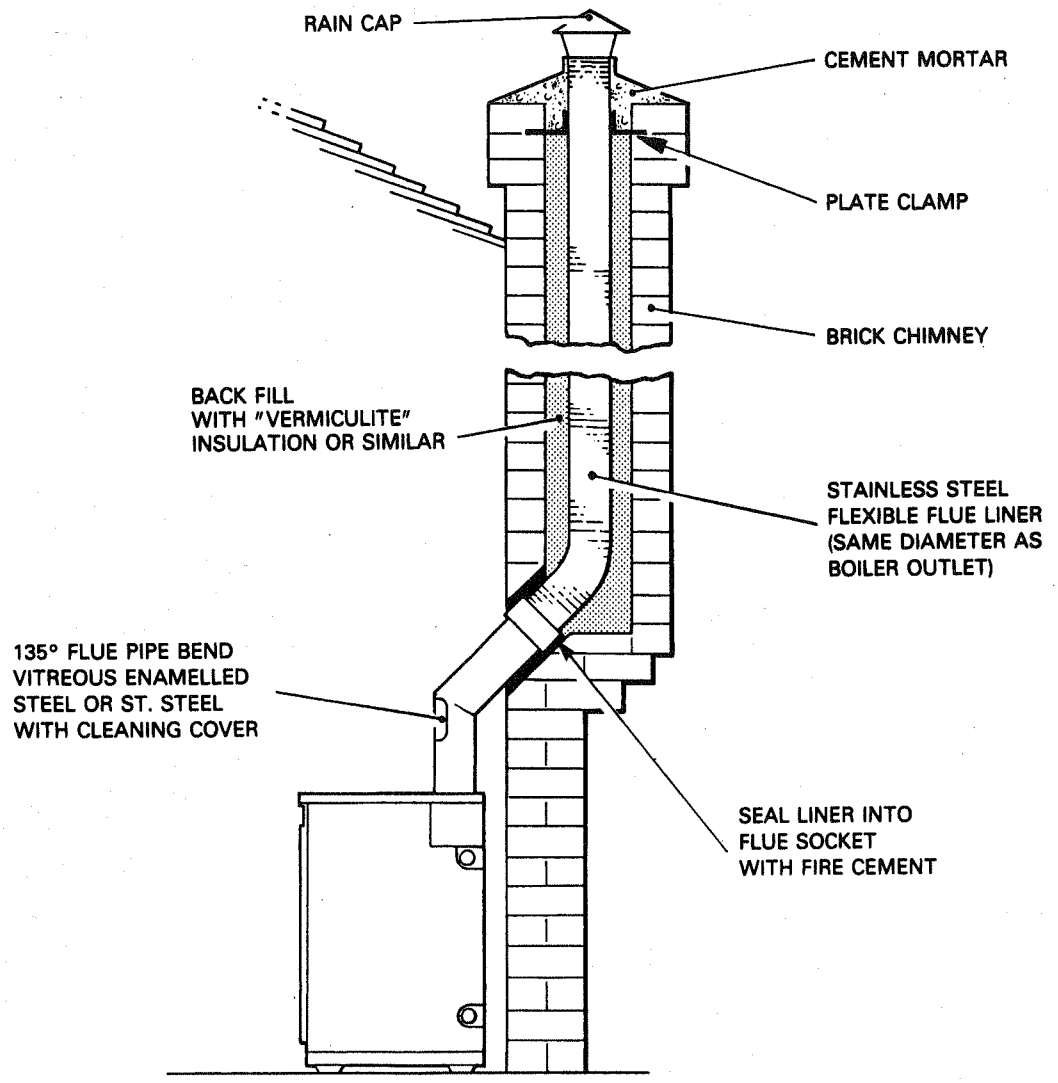


Fig 14 **CONVENTIONAL BRICK CHIMNEY WITH LINER**

Balanced Flue (room sealed) systems (optional extra)

The Trianco balanced flue system offers much greater flexibility for siting, the boiler compared with a conventional chimney. The only requirement is for a suitable outside wall to fit the horizontal discharge terminal or, alternatively, a single storey roof for a vertical discharge.

In additional to the siting benefit, the performance of balanced flue boilers is virtually unaffected by high wind conditions since the wind pressures are applied equally to both air intake and flue gas discharge, thus creating a balanced condition.

Whereas some balanced flue boilers rely on case sealing to achieve a room seal, Trianco boilers have a sealed air duct system which maintains the room sealed performance even when the casing door is removed for burner commissioning or adjustments.

The use of the balanced flue principle also enhances the overall thermal efficiency of the boiler since the incoming air extracts waste heat from the flue and returns it as pre-heated air to the burner where it aids combustion.

The high-level kits have an additional benefit in that the flue noise is reduced due to the coaxial arrangements of the air and flue pipes - the flue being surrounded by an air space forms an effective acoustic barrier.

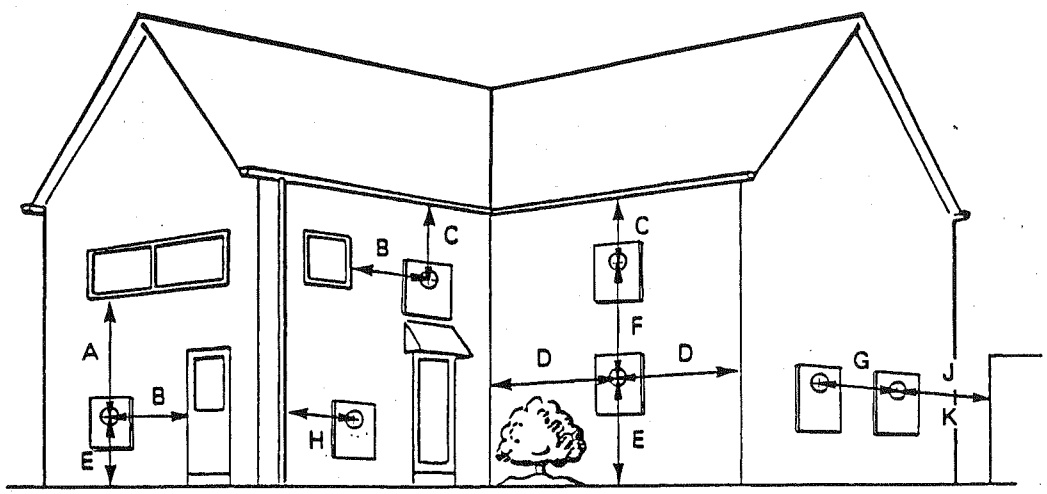
INSTALLATION NOTES

(a) Location.
Modern balanced flue boilers are designed to operate at low noise levels. However, when positioning your boiler, it is not recommended to have the terminal facing a neighbours property or patio etc. It should also be positioned to avoid products of combustion entering the building. A distance of at least 600mm must be allowed between the terminal and any window, door or other opening into the building, (see diagram for recommended terminal positions).

(b) Flue Sealing
As the flue system operates under positive pressure, it is essential to seal all flue joints. Apply a thin bead of silicone sealant (supplied) around flue pipe spigot before inserting into socket.

(c) Fuel
Only Kerosene 28 sec. Class C2 is permitted for boilers using low level flue discharge.

(d) Important
Trianco Flue Kits have been designed primarily to use with Trianco EuroStar boilers and as such compatibility with other makes of boiler cannot be guaranteed.



RECOMMENDED MINIMUM DISTANCES FOR TERMINAL POSITION

Location		Minimum Distance (mm)
A	Directly below an opening, window or air brick	600
B	Horizontally to an opening, window, door air brick	600
C	Below a gutter, drainpipe, eaves or balcony	600
D	From internal or external corners	300
E	Above ground level	600
F	Vertically from a terminal on the same wall	1500
G	Horizontally from terminals on the same wall	900
H	From a vertical drain pipe	300
J	From a surface facing the terminal	2000
K	From a terminal facing the terminal	2200

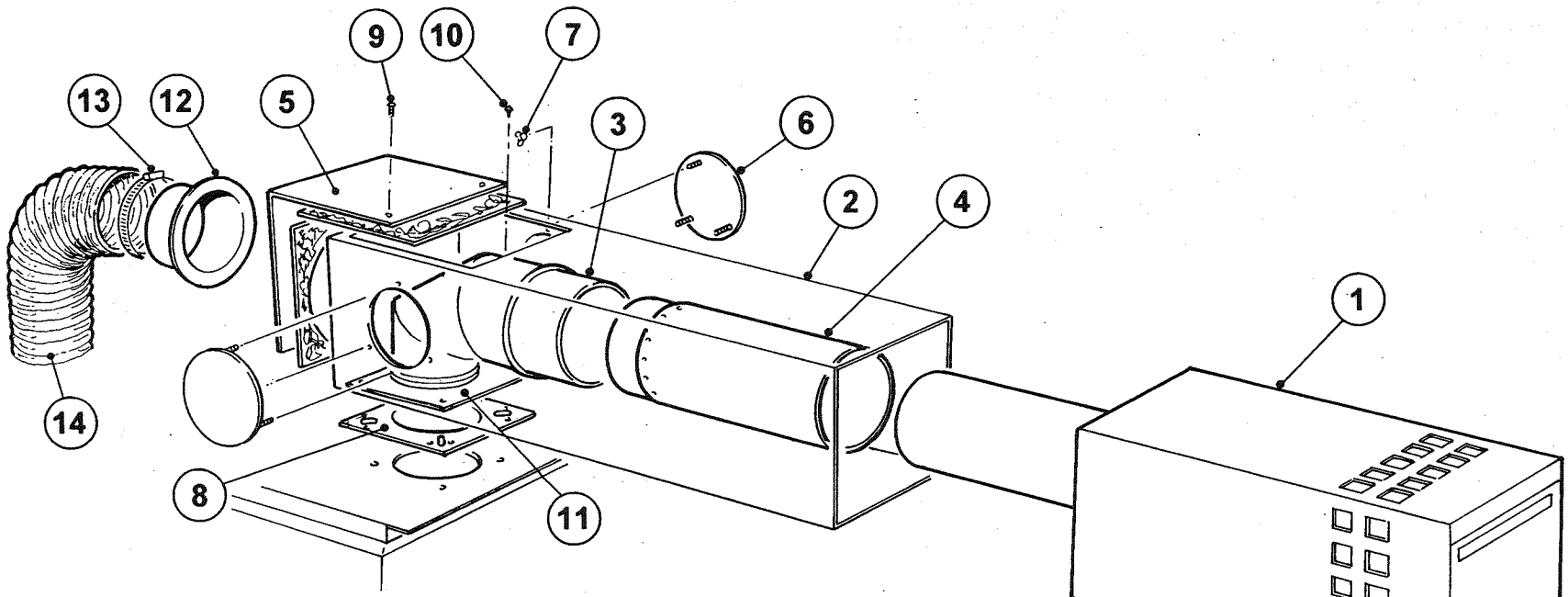
Note (1) **The terminal should be positioned so as to avoid products of combustion entering the building.**

Note (2) **If the terminal is less than 2 metres above the ground level, balcony or place to which any person has access, the terminal must be protected by a guard.**

Note (3) **If the terminal is fitted within 850mm of plastic or painted gutter or within 450mm of painted eaves a heat protection shield should be fitted to the underside of the gutter of eaves.**

Note (4) **The flue must be positioned so that it does not cause nuisance and permits the dispersal of combustion products.**

Fig 16

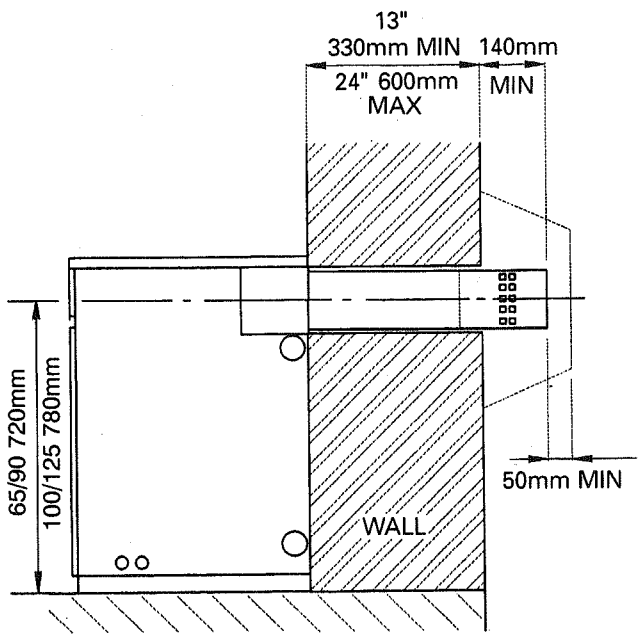


Item	Description	Part no.	No. Off
1	Flue terminal	208540	1
2	Flue Box	208555	1
3	Flue elbow	208547	1
4	Telescopic inner flue pipe	208578	1*
5	Blanking plate	208554	1
6	Round sealing plates	208551	3
7M4	wing nut	94380	9
8	Blanking plate gasket	208559	3
9	No. 6 x 12mm STS Hex. HD	91601	2
10	No. 6 x 12mm STS Pozi. HD	91523	6
11	Inner flue pipe spigot plate	208566	1
12	Air hose spigot	206933	1
13	Clip	95256	2
14	Hose	20693	1

208575 on 2271 kit only

*** Note item 4 supplied on 1000mm kit only**
Not required on 600mm kit.

2270 600mm Horizontal Telescopic BF Kit

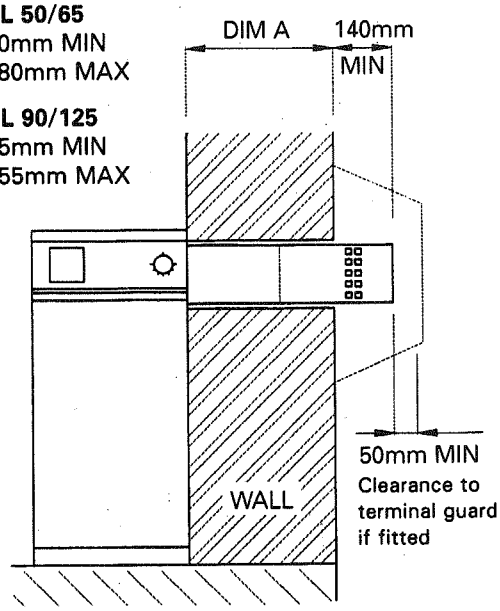


HOLE REQUIRED 170mm SQUARE
THROUGH WALL TO TAKE TERMINAL

REAR OUTLET

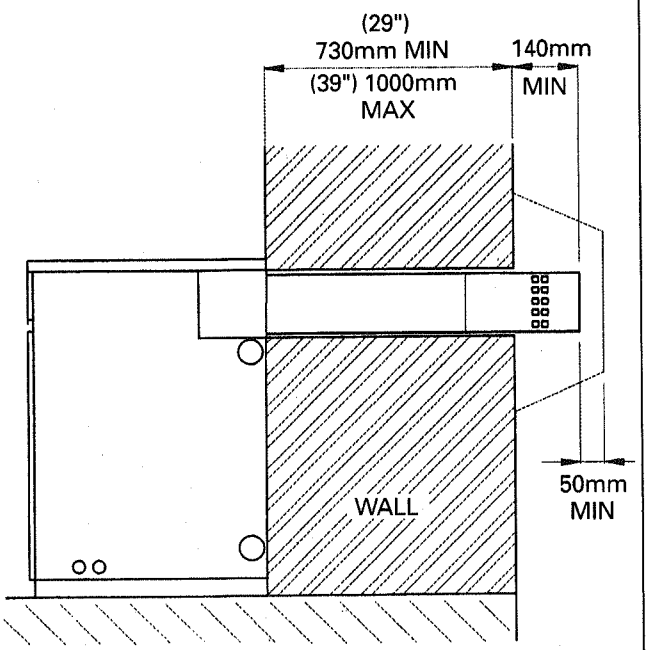
(Dimension 'A')
KIT 2270
MODEL 50/65
(8") 200mm MIN
(19") 480mm MAX

MODEL 90/125
(7") 175mm MIN
(18") 455mm MAX



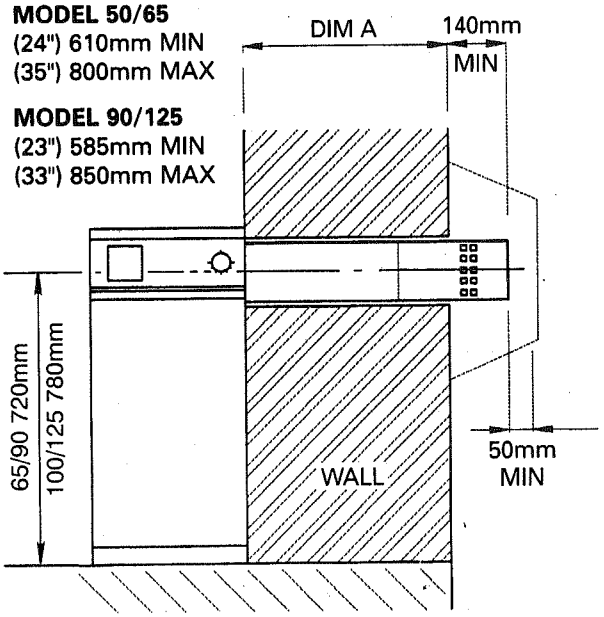
SIDE OUTLET

2271 1000mm Horizontal Telescopic BF Kit



(Dimension 'A')
KIT 2271
MODEL 50/65
(24") 610mm MIN
(35") 800mm MAX

MODEL 90/125
(23") 585mm MIN
(33") 850mm MAX



REAR OUTLET

SIDE OUTLET

Fig 17

600mm HORIZONTAL TELESCOPIC BF KIT

ASSEMBLY METHOD

1. Having decided the position of the boiler, cut a hole in the wall to take the balanced flue kit (refer to diagram for dimensional details).
2. Remove top casing, remove flue socket off top of boiler. Place gasket on top of the boiler and flue box on top of gasket, fit stainless steel inner flue pipe spigot plate into flue box and suing this as a clamping plate screw down to boiler top plate trapping flue box and gasket in position.
3. Fix flue elbow on to flue terminal inner pipe, slide terminal into flue box from outside locating elbow over spigot plate.
4. Measure from the face of the outside wall, to the end of the terminal subtract 140mm min this will give the length of pipe to be cut off the flue terminal inner pipe.
5. Remove flue terminal from flue box, remove elbow, cut flue terminal inner pipe to required length, reassemble elbow onto inner flue pipe and slide back into flue box.
6. Secure elbow onto spigot. IMPORTANT all flue joints must be sealed with silicon sealant.
7. Fit air hose spigot over hole in blanking plate and secure using M4 wing nuts for rear outlet (side outlet fit round sealing plate).
8. Fit round sealing plates in position on flue box using silicone sealant and M4 wing nuts (position of sealing plates and air hose spigot will depend upon whether terminal is installed to rear or side outlet).
9. Fit air hose between spigot on burner and spigot on flue box. Use 2 clips provided to secure air hose in position.
10. Make good around terminal on both sides of wall.
11. Replace to casing, fit flue blanking plate over cutout using 2 edge clips supplied to hold it in position.
12. Terminal guard required if terminal is less than 2 metres from ground level.

TERMINAL GUARDS

When the terminal is positioned where there is the possibility of accidental contact by persons, or of damage to the terminal, an approved guard is necessary.

Generally, exhaust 2 metres above ground level alleviates the necessity for a guard.

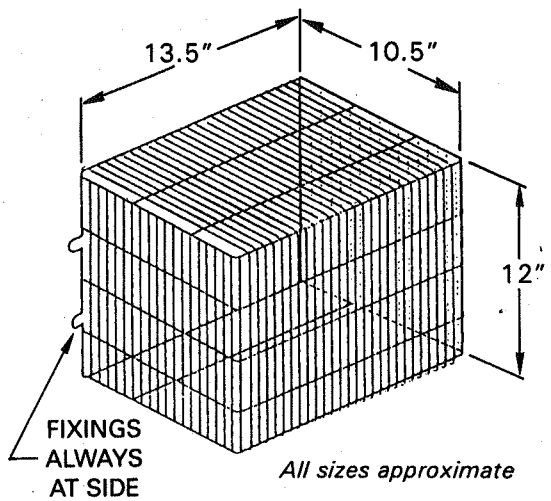
A suitable guard is available from Trianco,
part NO. 204123

1000mm HORIZONTAL TELESCOPIC BF KIT ASSEMBLY METHOD

1. Having decided the position of the boiler, cut a hole in the wall to take the balanced flue kit (refer to diagram for dimensional details).
2. Remove top casing, remove flue socket off top of boiler. Place gasket on top of the boiler and flue box on top of gasket, fit stainless steel inner flue pipe spigot plate into flue box and suing this as a clamping plate screw down to boiler top plate trapping flue box and gasket in position.
3. Slide telescopic inner flue pipe over inner flue pipe of flue terminal fix flue elbow on to an end of telescopic inner pipe and slide terminal into flue box from the out side locating elbow over spigot on spigot plate.
4. Wipe all flue joints with silicon sealant before assembling.
5. Push terminal inwards, a minimum dimension of 140mm form the wall to the end of the terminal is required.
6. Fit air hose spigot over hole in blanking plate and secure using M4 wing nuts for rear outlet (side outlet fit round sealing plate)
7. Fit round sealing plates in position on flue box using silicone sealant and M4 wing nuts (positions of sealing plates and air hose spigot will depend upon whether terminal is installed to rear or side outlet).
8. Fit air hose between spigot on burner and spigot on flue box. Use 2 clips provided to secure air hose in position.
9. Make good around terminal on both sides of wall.
10. Replace top casing, fit flue blanking plate over cutout using 2 edge clips supplied to hold it in position.
11. Terminal guard required if terminal is less than 2 metres form ground level.

IMPORTANT: FLUE SEALING

AS THE FLUE SYSTEM OPERATES UNDER POSITIVE PRESSURE, IT IS ESSENTIAL TO SEAL ALL FLUE JOINTS. APPLY A THIN BEAD OF SILICONE SEALANT (SUPPLIED) AROUND FLUE PIPE SPIGOT BEFORE INSERTING INTO SOCKET.



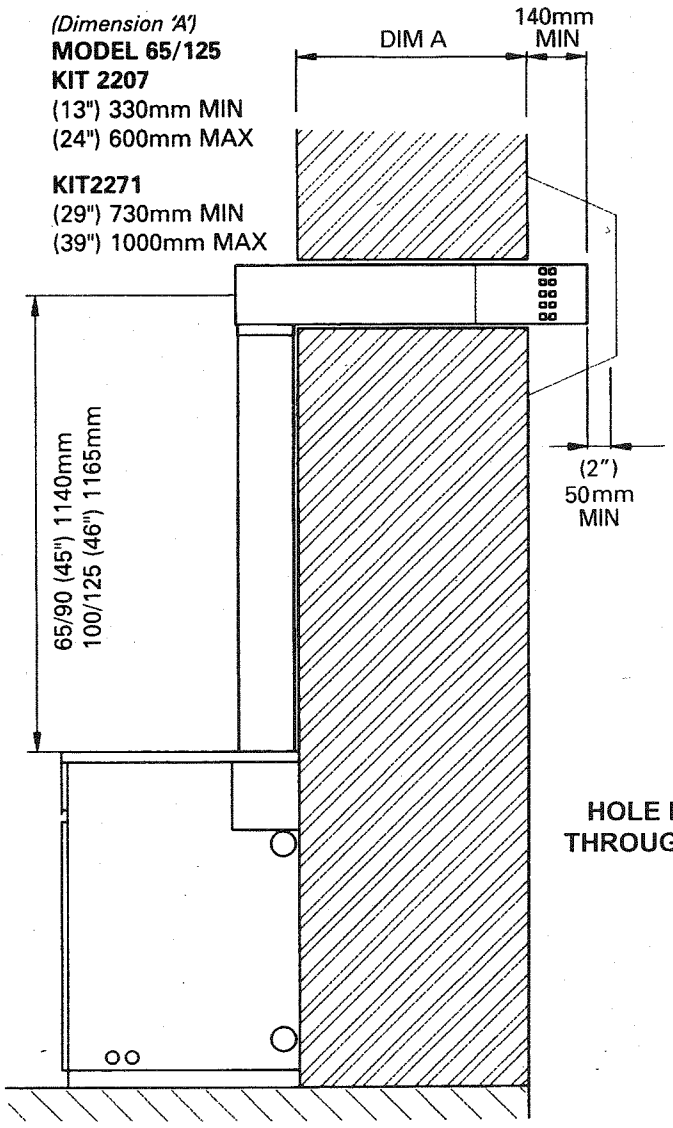
All sizes approximate

Fig 18

2272 HIGH LEVEL ADAPTOR KIT USED IN CONJUNCTION WITH 2270 OR 2271

(Dimension 'A')
MODEL 65/125
KIT 2207
(13") 330mm MIN
(24") 600mm MAX

KIT2271
(29") 730mm MIN
(39") 1000mm MAX



REAR OUTLET

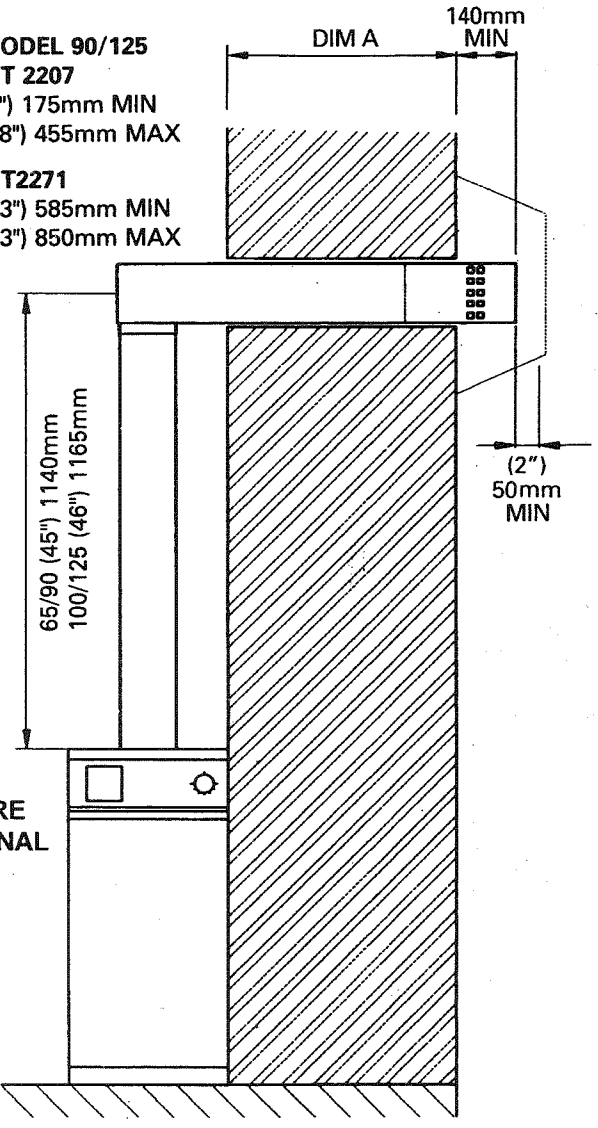
HOLE REQUIRED 170mm SQUARE
THROUGH WALL TO TAKE TERMINAL

(Dimension 'A')
MODEL 50/65
KIT 2207
(9") 200mm MIN
(19") 480mm MAX

KIT2271
(24") 610mm MIN
(35") 890mm MAX

MODEL 90/125
KIT 2207
(7") 175mm MIN
(18") 455mm MAX

KIT2271
(23") 585mm MIN
(33") 850mm MAX



SIDE OUTLET

High Level Adaptor Kit used with 600mm Horizontal Telescopic BF Kit

ASSEMBLY METHOD

1. Having decided the position of the boiler, cut a hole in the wall to take the balanced flue kit (refer to diagram for dimensional details).
2. Remove top casing, remove flue socket off top of boiler. Place gasket on top of the boiler and flue box on top of gasket, fit stainless steel inner flue pipe spigot plate into flue box and suing this as a clamping plate screw down to boiler top plate trapping flue box and gasket in position.
3. Assemble two outer flue pipes together.
4. Assemble stainless steel inner flue pipes together, slide into long outer flue pipe, ensure shorter inner pipe and shorter outer flue pipe are at the same end,(this end connects to top of the boiler).
5. Fit inner and outer flue pipes to boiler locating inner pipe over spigot, on stainless steel spigot plate, and outer pipe in flue socket.
6. With flue pipes assembled measure length of flue required mark pipes and cut to length (when flue pipes are assembled inner stainless steel pipes should protrude form outer flue pipe by 20mm.
7. Take flue box and to under side of box (identified by twelve holes around square cut out) fit outer flue pipe spigot and gasket using self tapping screws. **NOTE** - there are two outer flue pipe spigot plates in this kit use the one without the chamfered corners the other one is not required for this installation.
8. Slide flue box through the cut out in wall and locate spigot inside outer flue.
9. Fix flue elbow on to flue inner pipe, slide terminal into flue box from outside locating elbow over inner flue pipe.
10. Measure from the face of the outside wall to the end of the terminal subtract 140mm (min) this will give the length of pipe to be cut off the flue terminal inner pipe.
11. Remove flue terminal from the flue box remove elbow and cut terminal inner pipe to required length, reassemble elbow into flue pipe and slide back into flue box.
12. Secure elbow onto inner flue pipe.

IMPORTANT ALL JOINTS MUST BE SEALED WITH SILICONE SEALANT.

13. Fit round sealing plates in position on flue box using silicone sealant and M4 wing nuts.
14. Fit round sealing plates on to blanking plate and secure using four self tapping screws.
15. Make good wall inside and outside.
16. Use 2 clips provided to secure air hose in position between burner and air hose spigot on short outer flue pipe.
17. Replace top casing.
18. Terminal guard required if terminal is less than 2

High Level Adaptor Kit used with 1000mm Horizontal BF Kit

ASSEMBLY METHOD

1. Having decided the position of the boiler, cut a hole in the wall to take the balanced flue kit (refer to diagram for dimensional details).
2. Remove top casing, remove flue socket off top of boiler. Place gasket on top of the boiler and flue box on top of gasket, fit stainless steel inner flue pipe spigot plate into flue box and suing this as a clamping plate screw down to boiler top plate trapping flue box and gasket in position.
3. Assemble two outer flue pipes together.
4. Assemble stainless steel inner flue pipes together, slide into long outer flue pipe, ensure shorter inner pipe and shorter outer flue pipe are at the same end,(this end connects to top of the boiler).
5. Fit inner and outer flue pipes to boiler locating inner pipe over spigot, on stainless steel spigot plate, and outer pipe in flue socket.
6. With flue pipes assembled measure length of flue required mark pipes and cut to length (when flue pipes are assembled inner stainless steel pipes should protrude form outer flue pipe by 20mm.
7. Take flue box and to under side of box (identified by twelve holes around square cut out) fit outer flue pipe spigot and gasket using self tapping screws.

   NOTE - there are two outer flue pipe spigot plates in this kit use the one without the chamfered corners the other one is not required for this installation.
8. Slide flue box through the cut out in wall and locate spigot inside outer flue.
9. Slide telescopic inner flue pipe over inner flue pipe of flue terminal fix flue elbow on to end of telescopic inner pipe and slide terminal into flue box from outside locating elbow over inner flue pipe.
10. Push terminal inwards, a minimum dimension of 140mm from wall to the end of the terminal is required.

IMPORTANT ALL JOINTS MUST BE SEALED WITH SILICONE SEALANT.

11. Fit round sealing plates in position on flue box using silicone sealant and M4 wing nuts.
12. Fit round sealing plates on to blanking plate and secure using four self tapping screws.
13. Make good wall inside and outside.
14. Use 2 clips provided to secure air hose in position between burner and air hose spigot on short outer flue pipe.
15. Replace top casing.
16 Terminal guard required if terminal is less than 2 metres from ground level.

IMPORTANT: FLUE SEALING

AS THE FLUE SYSTEM OPERATES UNDER POSITIVE PRESSURE, IT IS ESSENTIAL TO SEAL ALL FLUE JOINTS. APPLY A THIN BEAD OF SILICONE SEALANT (SUPPLIED) AROUND FLUE PIPE SPIGOT BEFORE INSERTING INTO SOCKET.

2273 Vertical Balanced Flue Kit

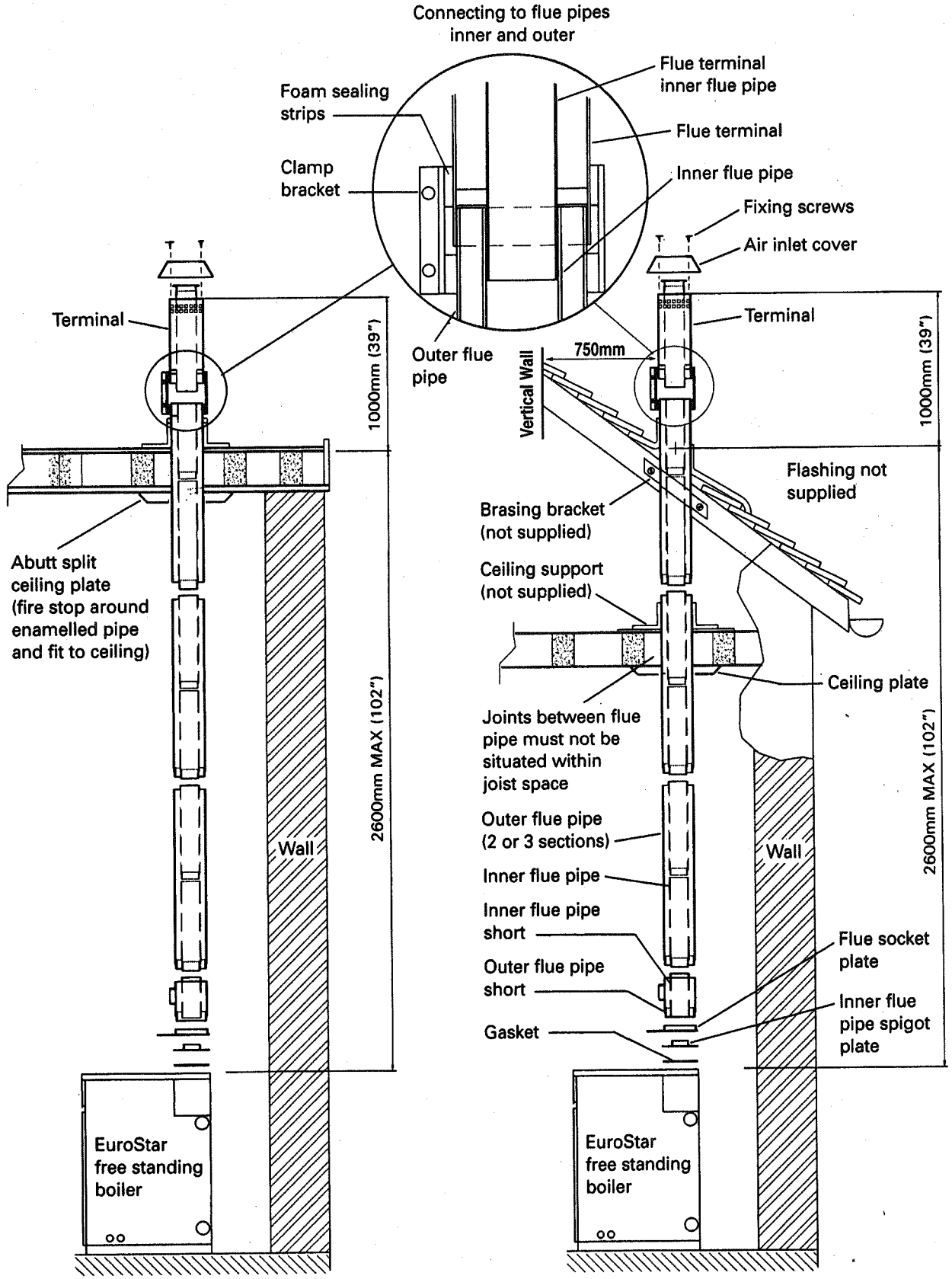


Fig 19 **(Outside Diameter of pipe 145mm)**

Vertical Balanced Flue Kit

ASSEMBLY METHOD

1. Having decided the position of the boiler, cut a hole 175mm diameter or square in ceiling and roof.
2. Remove top casing, remove flue socket off top of boiler. Place gasket on top of the boiler and flue box on top of gasket, fit stainless steel inner flue pipe spigot plate into flue box and using this as a clamping plate screw down to boiler top plate trapping flue box and gasket in position.
3. Measure length of outer flue pipe required form top of the boiler to a point above roof flashing line.
4. Assemble required lengths of outer flue pipe (the short piece of outer flue pipe on the end that connects to the boiler (if inner pipe assembly is to be cut, it should be cut at the top end).
   NOTE - inner and outer pipes must be the same length.
6. Make sure inner and outer flue pipes are pushed fully into the sockets and sealed with silicone sealant.
7. Pass complete pipe assembly up through ceiling and lower inner flue pipe spigot whilst locating outer flue pipe inside flue s socket on top of boiler.
8. Fit ceiling plate centrally over hole ensuring outer flue pipe has a minimum clearance of 25mm form any combustible material. Pack space with glass fibre insulation.
9. Fix pipe bracket (where necessary) to roof structure and fit waterproof flashing around outer flue pipe at roof line (not supplied in kit)
10. Slide terminal into top of outer flue pipe ensuring inner pipe on terminal engages over inner flue pipe. Fit clamp bracket around joint line of terminal and outer flue pipe. Use foam sealing strip inside clamp bracket.
11. Fit air inlet cowl to top of terminal using 4 self tapping screws.
12. Use 2 clips provided to secure air hose in position between burner and short outer flue pipe spigot.
13. Replace top casing.

IMPORTANT: FLUE SEALING

AS THE FLUE SYSTEM OPERATES UNDER POSITIVE PRESSURE, IT IS ESSENTIAL TO SEAL ALL FLUE JOINT. APPLY A THIN BEAD OFSILICONE SEALANT (SUPPLIED) AROUND FLUE PIPE SPIGOT BEFORE INSERTING INTO SOCKET.

7 COMMISSIONING

Open the CH flow and CH return valves. Remove the front casing panel by pulling away the top and lifting clear of the bottom retaining tabs. Pull off the casing top panel form the spring pins.Fill the system with water using one of the approved methods in Section 3 to about 2.0 bar. Vent the system via the radiator valves and system air vents in accordance with normal practice.

The water system must be thoroughly flushed out, initially with cold water, ensuring that all valves are open. Refill the system and vent all air from the system to ensure removal of all air locks (including the pump).

Examine the system for water leaks, after pressurising to 1.5 bar - rectify where necessary. At this stage the operation of the safety valve should be checked by allowing the water pressure to increase until the valve operates - this should be between 2.7 bar and 3.3 bar.

Release the cold water to achieve the initial (cold fill) system design pressure. The marker on the pressure gauge should be set to the initial design pressure.

Note: Special care is required where the boiler is used on an old system, which should be drained and flushed out, using the correct cleaning/flushing agent, ensuring that all radiators are drained. The use of a corrosion inhibitor suitable for copper based boilers is recommended.

It is essential that the boiler/burner unit is commissioned by a qualified technician, preferably OFTEC trained and registered.

It is the responsibility of the installer to ensure the boiler is properly commissioned, failure to do so will make the boiler and any extended warranty invalid.

Although all burners are factory tested before despatch, they will usually need further air adjustment to achieve the readings indicated in 'Burner detail leaflet' because of site variations in flue draught and back pressure.

Procedure

1. Switch off all electrical supply to boiler.
2. Ensure boiler is full of water and all valves are open.
3. Remove flue-cover and check that flue-baffles are correctly positioned (see Fig. 16 and Fig 16a for baffle arrangement).
4. Disconnect oil hose from burner, open shut-off valve and run off a quantity of oil into a container to check for a clean air free supply then reconnect the hose. (This applies to a single pipe gravity system only).
5. Check that the time-switch (if fitted) is in the ON position and room and boiler thermostats are calling for heat.
6. Switch on electrical supply and the burner should start.

Note : The burner may lock-out on first firing due to air in the pump, if this happens, wait about a minute before pressing reset button to restart burner. If a further lock-out occurs, the air should be bled form the pump pressure gauge connection.

7. Start and stop the burner two or three times until; the flame cuts off sharply - this indicates any remaining air has been dispersed.
8. Allow the burner to run for about 15 minutes, then take a CO_2 reading through the sampling hole in the flue cover . Compare the reading with that given under 'Burner Settings' and adjust the air setting if necessary to achieve the required CO2%. Also, check smoke, flue gas temperature and pump pressure which may be found in the 'Burner Details' leaflet.

Handing Over

After completing the boiler installation, the installer should make a thorough check of the system to ensure it is completely satisfactory and demonstrate to the user the operation of the boiler and any system controls.

All instructions should be handed to the user for retention and advice regarding the need for annual servicing. Guarantee should be completed and returned.

8. SERVICING

IMPORTANT: ISOLATE ELECTRICAL SUPPLY TO THE BOILER BEFORE SERVICING

To maintain the boilers high thermal efficiency and reliable operation, it should be serviced annually by a qualified engineer preferably OFTEC trained and registered. Electrical work should be carried out by a qualified engineer.

Note: It is a requirement of the boiler's guarantee that an annual service is carried out by a qualified engineer.

If the boiler is used to provide central heating and hot water all year round, the best time for its annual service is just before the start of the heating season. Where the boiler is shut down for the summer months, the service should be carried out as soon as possible after the end of the heating season.

Oil tank

Open drain-cock to draw off any accumulated water and sludge.

Line filters

Turn off oil supply and remove filter bowl. Wash filter element clean with kerosene.

Servicing the Burner

See separate leaflet 'Burner Details'.

Servicing the Boiler
(Burner removed)

1. Remove the flue-cover and lift out flue-baffles (See diagrams below).
2. Brush all deposits from flue-baffles and internal surfaces of the boiler.
3. Remove flue deposits from the combustion chamber floor using a vacuum cleaner.
4. Replace flue baffles in the correct arrangement (See diagram below for order of assembly). Refit the flue-cover and fully tighten wing-nuts to make a gas tight seal.
5. Refit burner to boiler, connect flexible air hose (balanced flue boilers only) and plug-in burner lead.
6. Turn on oil supply, switch on electricity and burner should fire.
7. Finally check the combustion readings with those given under 'Burner Settings' and make any air or pressure adjustments necessary.

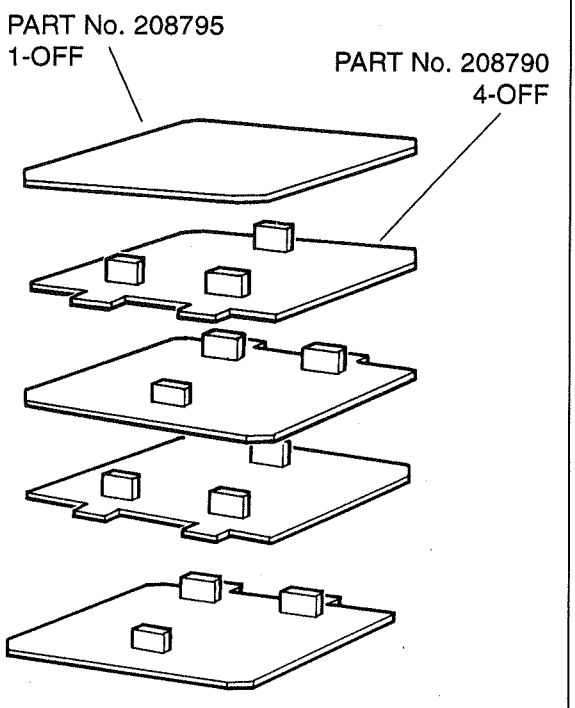


Fig. 20

Combi 65 Baffle Arrangement

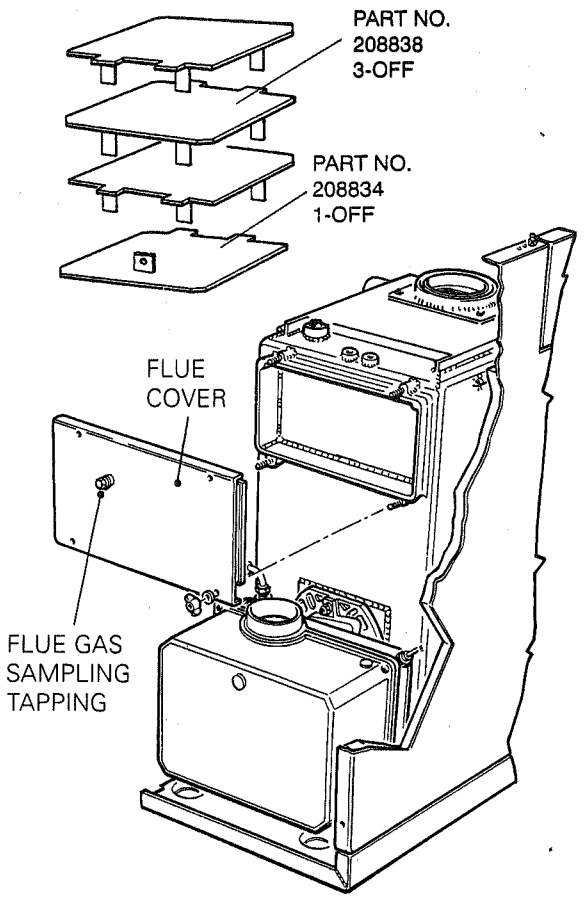


Fig. 20a

BAFFLE DETAILS FOR
TRIANCO EuroStar Combi 90 OIL FIRED BOILER

9. FAULT FINDING

Burner

ELECTRICITY SUPPLY - before making any electrical checks, switch off mains supply to boiler.

FAULT	POSSIBLE CAUSE	ACTION
BURNER FAILS TO START	Control box locked out - Light on	Press control box reset button NB only try twice
	Limit-stat tripped	Press reset button under control panel and check function of boiler control thermostat.
	Boiler thermostat or other system controls satisfied.	Ensure all controls are calling for heat.
	Fuse blown	Fit new 5 amp fuse, if it blows again, check for short circuit in wiring.
	Check for live supply continuity up to burner	If live supply confirmed, change control box.
	Motor or pump seized	Check for rotation and replace as necessary.
BURNER STARTS BUT FLAME NOT ESTABLISHED	No oil supply	Check oil level in tank and feed to burner.
	Photo-cell not seeing flame	Clean photo cell and ensure it is fully plugged in.
	Air trapped in pump	Bleed air through pressure gauge tapping.
	Solenoid valve faulty	Check coil for continuity and replace if faulty.
	Nozzle blocked	Replace nozzle with one of same specification.
	Electrodes incorrectly set	Reset gap and position electrodes as shown in burner diagram.
	Electrode insulator cracked	Check and replace if insulator cracked or crazed.
	Ignition transformer and H.T. leads faulty contacts	Check for spark and condition of H.T. contacts. Replace as necessary.
	Low oil pressure	Check pump pressure and adjust to correct setting.
FLAME ESTABLISHED BUT BURNER LOCKS OUT AFTER FEW SECONDS	Oil contaminated with water	Run off oil at burner until free of water and drain condensation from tank.
	Oil filter partially blocked	Wash filter clean with kerosene.
	Photo cell fault	Clean photo-cell and ensure it is fully plugged in. Replace if faulty.
	Oil pressure low	Check pump pressure and adjust to correct setting.

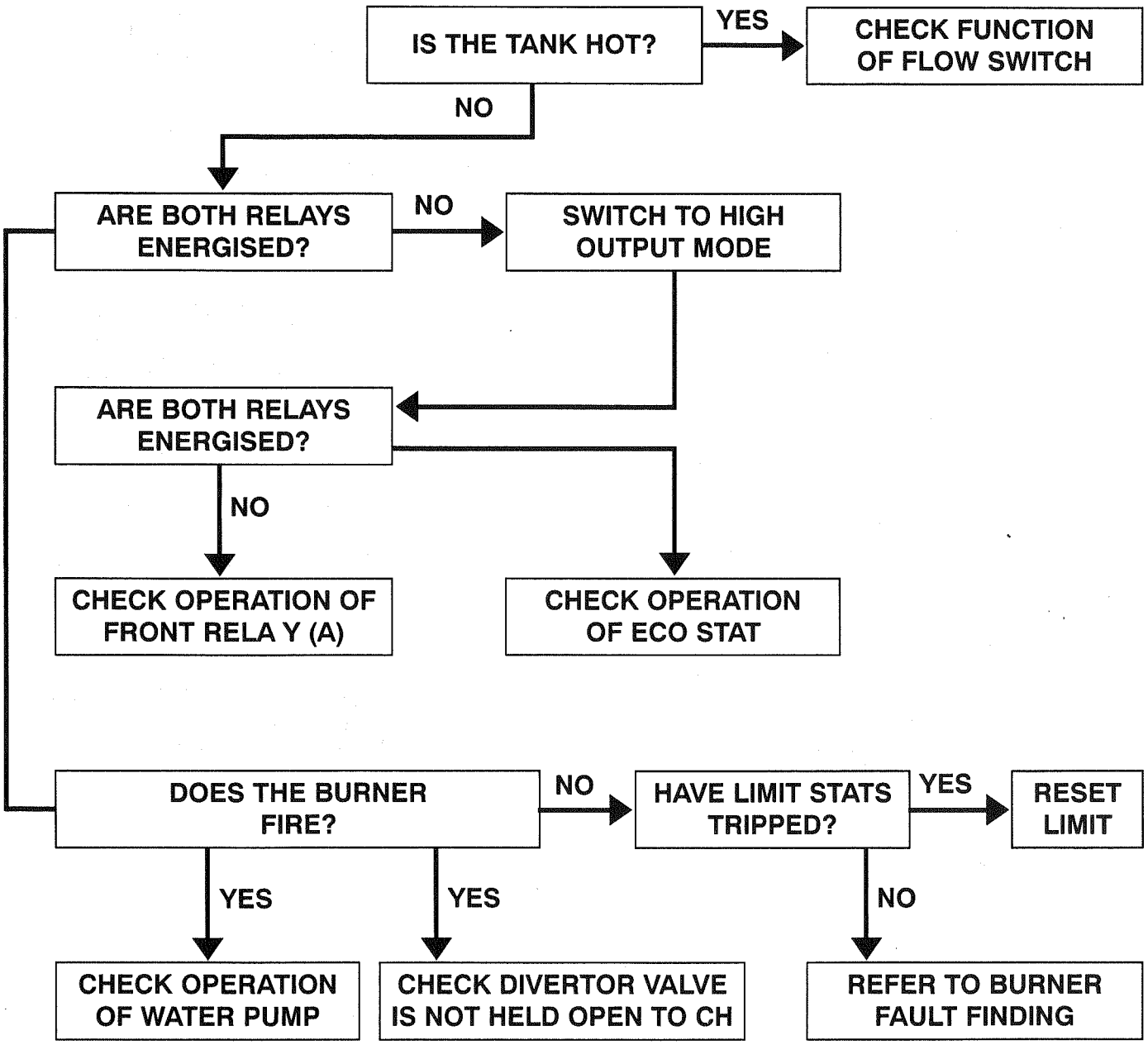
FAULT	POSSIBLE CAUSE	ACTION
POOR FLAME CUT-OFF	Air in pump or at back of nozzle	Bleed pump through pressure gauge port, also check for leaks in oil line if 2-pipe system.
	Oil contaminated with water	Run off oil at burner until free of water and drain condensation from tank.
	Dirt in solenoid valve	Clean or replace valve.
	Pump shut-off piston sticking	Replace pump.
MORNING START LOCK-OUT	Faulty non-return valve or air leak in two pipe system	Replace non-return valve and cure leak.
	Low voltage	Check with Electricity Board.
	Combustion readings incorrect	Check combustion under normal running conditions and compare readings with those given under 'Burner Settings'.
	Oil level in tank falling below burner	Raise tank or fit a 2-pipe system.
DELAYED IGNITION - BURNER PULSATES ON START UP	Nozzle partially blocked	Replace nozzle
	Oil pressure too low	Check and recommission
	Flue blocked or damaged	Check and rectify
	Fan slipping on shaft	Check and retighten
	Pump coupling loose or worn	Check and replace
BURNER STARTS VIOLENTLY	Delayed ignition	Check electrode setting and adjust to correct gap Check electrode for damage Check H.T. leads for damage and positive connection

COMBI 65 AND 90 WITH ECO SETTING

FAULT FINDING

NO DOMESTIC HOT WATER

Switch to ECO and allow 25 minutes for tank to warm up

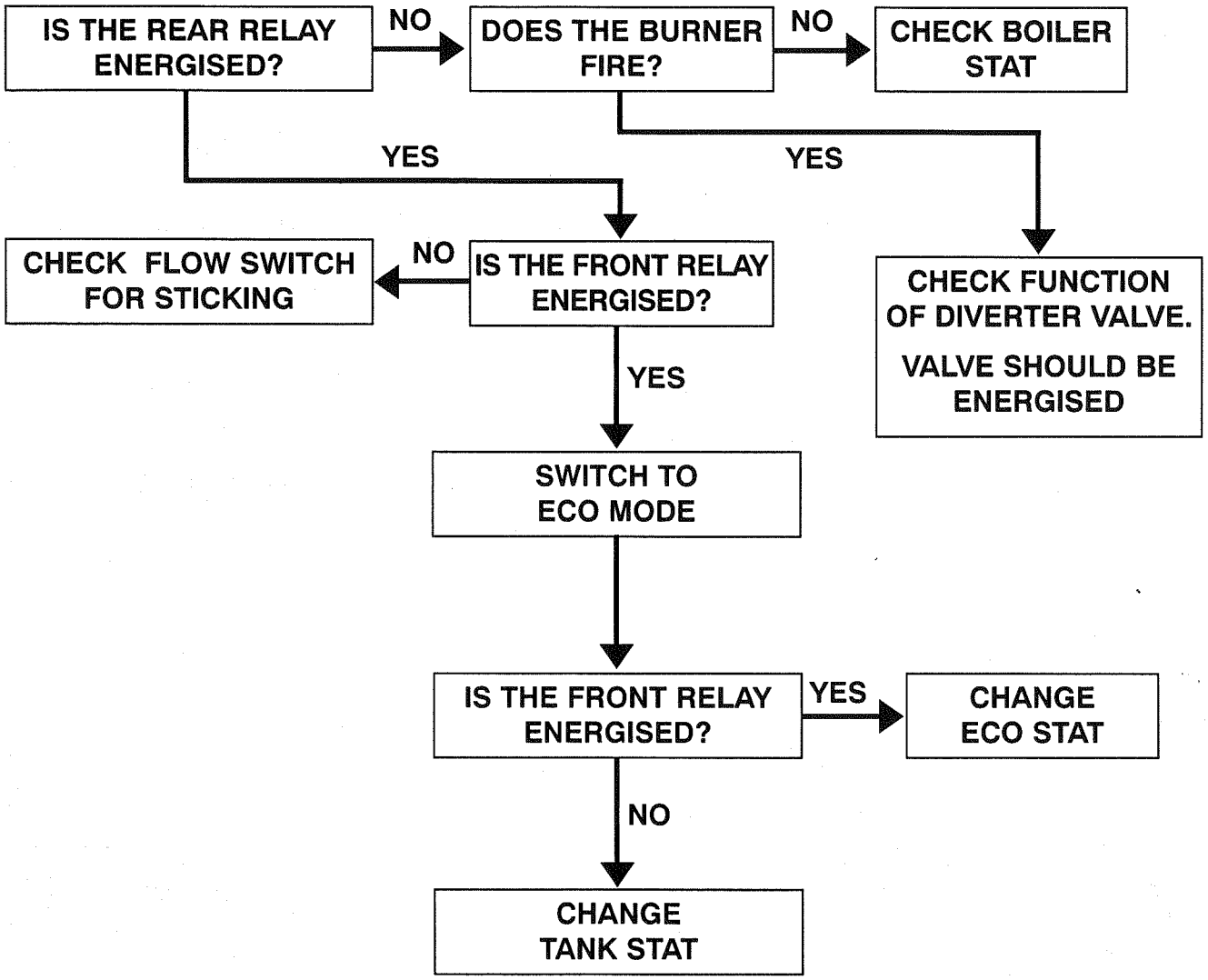


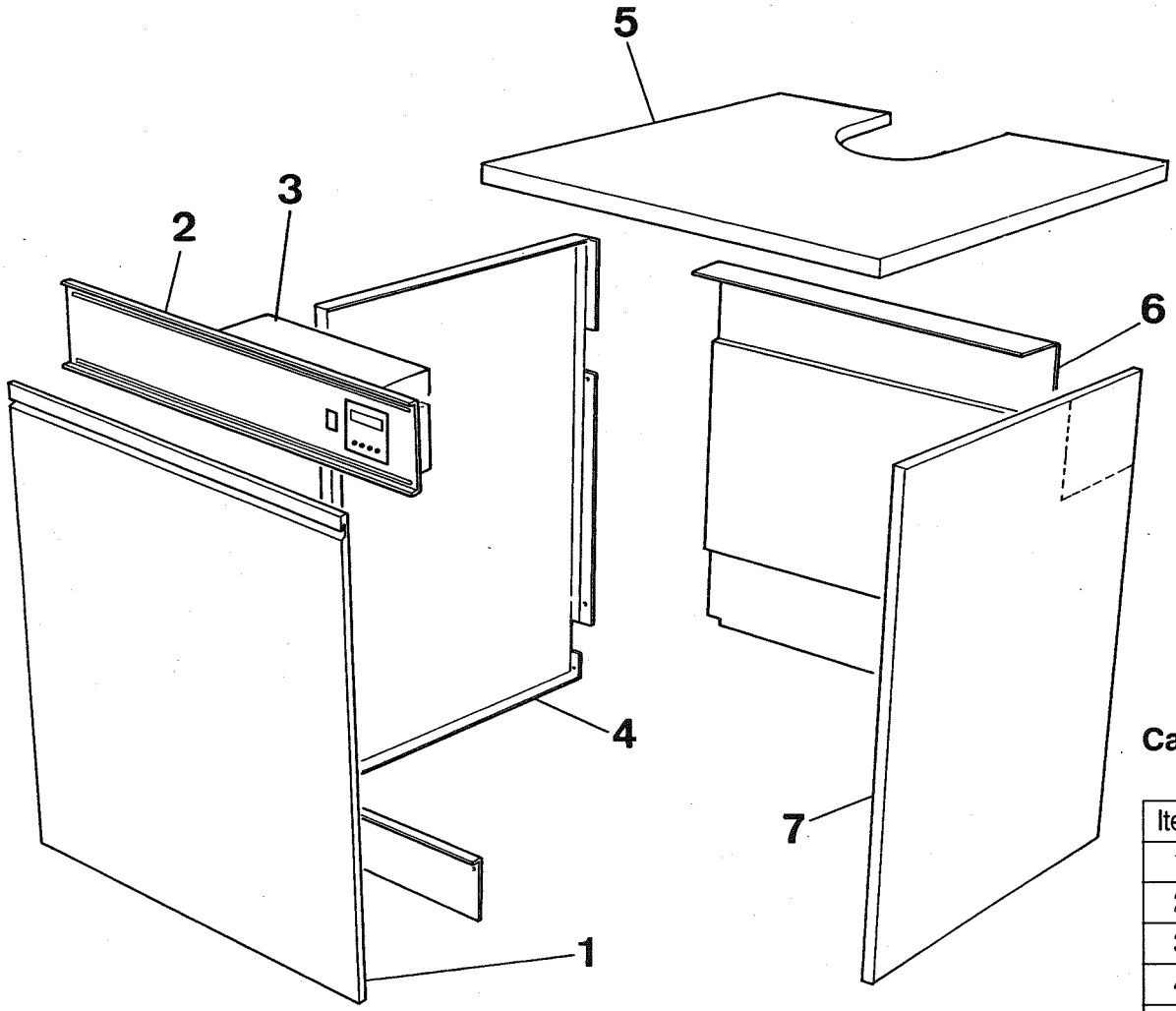
COMBI 65 AND 90 WITH ECO SETTING

FAULT FINDING

NO CENTRAL HEATING

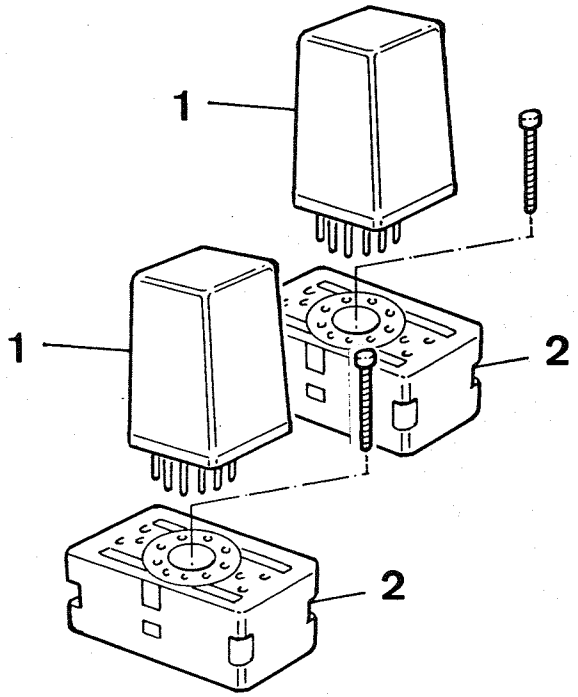
Allow 25 minutes for tank to heat up

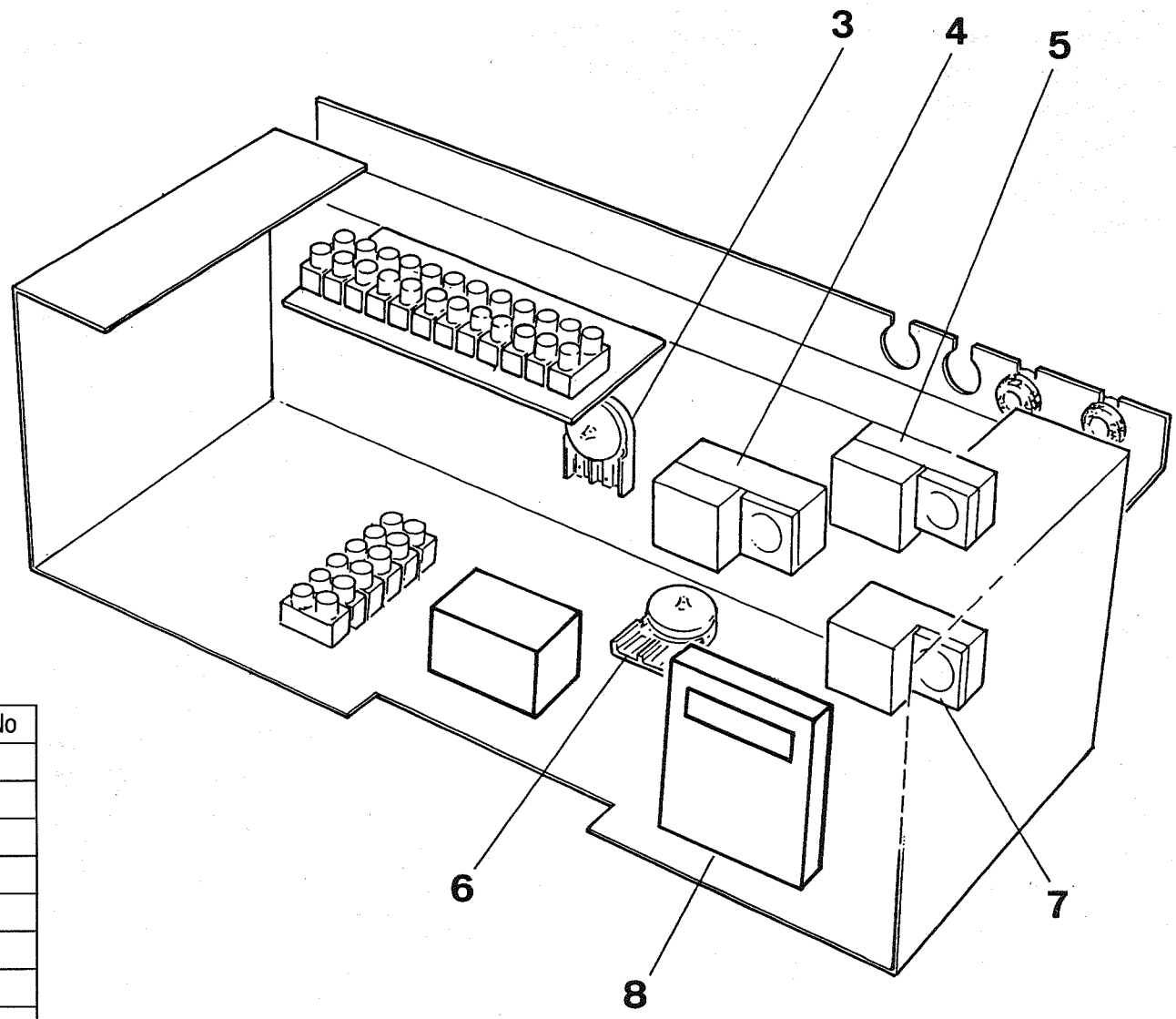




Casing Assembly

Item	Description	65	90
1	Door Assembly	208736	501878
2	Control Facia Assembly	209859	209868
3	Control Box Assembly	209853	209853
4	Side Casing Assembly L/H	208110	208110
5	Top Panel Assembly	208730	208100
6	Back Panel	208734	208129
7	Side Casing R/H Assembly	208105	208105

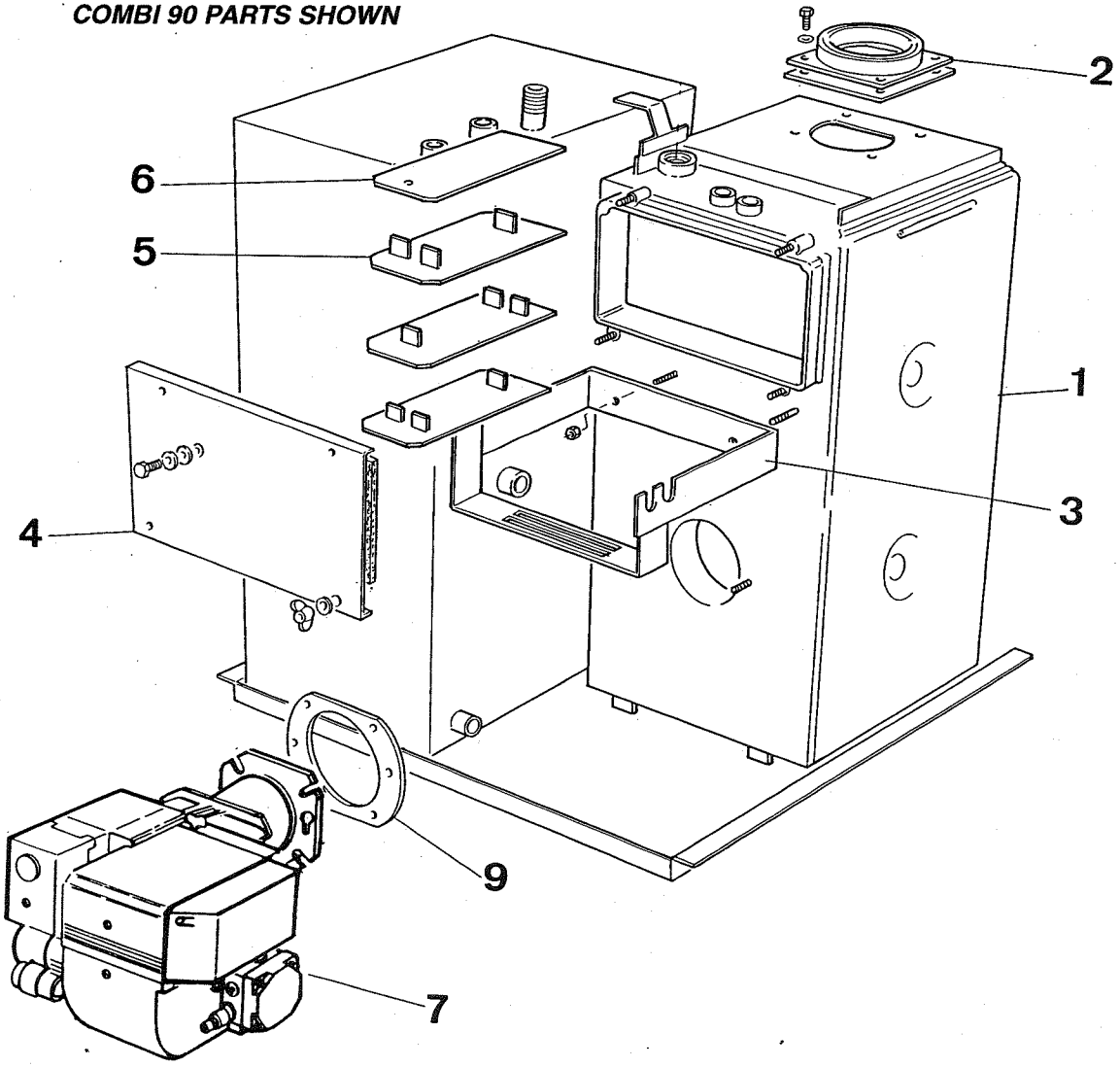




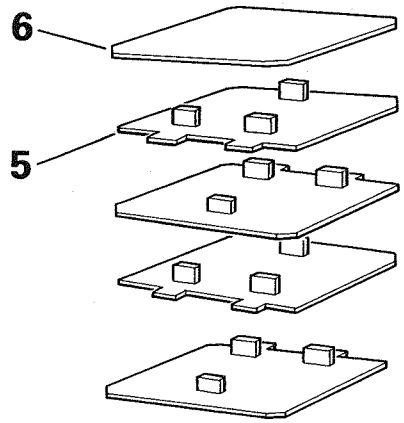
Control Box Assembly Assembly

Item	Description	Trianco Part No
	Control Box Assembly Assembly	209853
1	Relay	54572
2	Relay Base	501765
3	Tank Limit Stat	208096
4	DHW Stat	209850
5	ECO Stat	209851
6	Boiler Limit Stat	206892
7	Tank	209852
8	Boiler Control Stat	209854
9	Programmer	207120

COMBI 90 PARTS SHOWN

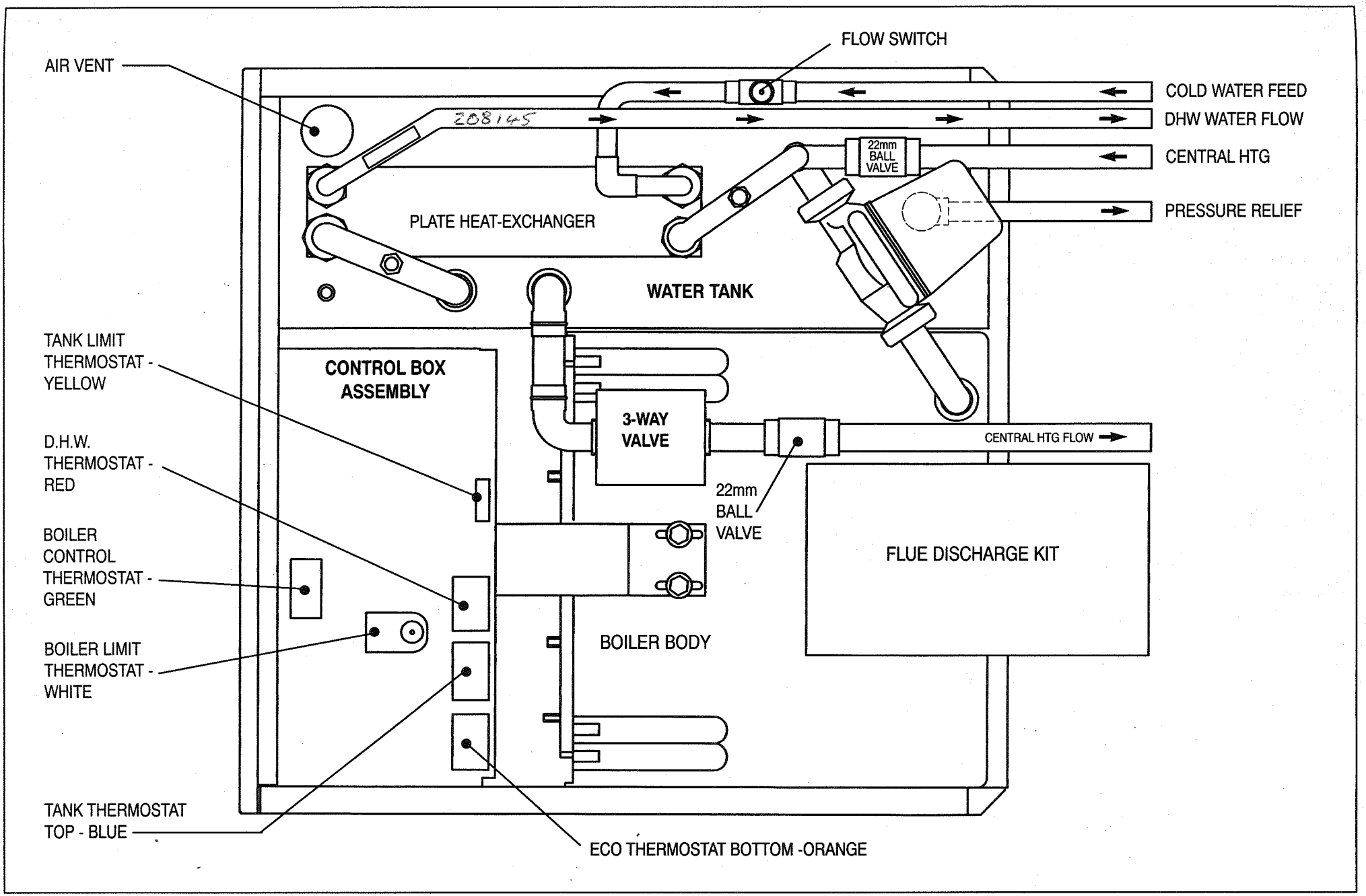


COMBI 65 BAFFLES



Boiler Parts

Item	Description	65	90
1	Boiler & Tank W.U.	208750	209500
2	Flue off-take	207772	207772
3	Expansion Vessel Bracket	207274	207274
4	Cleaning Door	208780	208803
5	Baffle	208790	208834
6	Baffle Top Plate	208795	208838
7	Burner Assembly	208894	208895
8	Oil Line	207029	207029
9	Burner Flange gasket	208879	208799


AIR VENT
FLOW SWITCH
COLD WATER FEED
DHW WATER FLOW
CENTRAL HTG
PRESSURE RELIEF
208145
22mm BALL VALVE
PLATE HEAT-EXCHANGER
WATER TANK
TANK LIMIT THERMOSTAT - YELLOW
CONTROL BOX ASSEMBLY
3-WAY VALVE
CENTRAL HTG FLOW
D.H.W. THERMOSTAT - RED
22mm BALL VALVE
BOILER CONTROL THERMOSTAT - GREEN
FLUE DISCHARGE KIT
BOILER LIMIT THERMOSTAT - WHITE
BOILER BODY
TANK THERMOSTAT TOP - BLUE
ECO THERMOSTAT BOTTOM -ORANGE

By appointment to H.M. Queen Elizabeth
The Queen Mother
Manufacturers of Domestic Boilers

TRIANCO REDFYRE LIMITED
Thorncliffe, Chapeltown, Sheffield S35 2PZ
Tel: Sheffield (0114) 257 2300
Fax: (0114) 245 3021

© Trianco Redfyre Limited 1998, Copyright in this brochure and the drawings or illustrations contained in it is vested in Trianco Redfyre Limited and neither the brochure or any part thereof may be reproduced without prior written consent.

Trianco Redfyre policy is one of continuous research and development. This may necessitate alterations to this specification.

Printed by WFO Ltd. (01709) 740078 August 1998 Item No. 209038